

# Western Hog **JOURNAL**

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**Banff Pork  
Seminar 2011**



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(January 1st 2006 – December 31st 2009)

YEAR	2006	2007	2008	2009
No. of SMS Farms	380	467	585	683
No. of SMS Females	683,570	839,998	1,106,344	1,215,511
Genesis Top 10%	29.45	29.97	29.71	30.06
SMS Average All	22.58	22.94	23.30	23.80
Genesis Average All	26.41	26.55	26.78	26.82
SMS Bottom 25%	18.98	18.82	19.72	20.16
Genesis Bottom 25%	24.89	25.17	25.19	25.26
Genesis Herds in SMS Top 10	8	8	8	8
Genesis Herds in SMS Top 20	9	14	15	13

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### Cover Photo

Bright blue skies made for a fantastic view from the Vistas restaurant at the Banff Centre, with the new Kinnear Centre on the right



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## **Banff Pork Seminar 2011 Preface**

The theme of this year's Banff Pork Seminar – Facing Forward to our Future – seemed particularly appropriate after the attrition and consolidation in the industry over the past four years. Those players that remain in the industry appear to have a new determination to overcome the challenges they face. The line-up of speakers in the plenary sessions certainly provided a great deal of food for thought and occasional inspiration.

Leo den Hartog described how the feed industry is changing to balance the needs of efficiency with social and ecological demands, coining the phrase *Sustainable Precision Livestock Farming*. Banker Mark Greenwood said that in a highly volatile financial environment producers must implement better risk management strategies and provide lenders with up-to-the-minute budgets and forecasts if they are to receive support from their banks. The ever-popular Ron Plain described the new reality of higher and more variable feed costs, due to US ethanol policy, that are putting pressure on producer margins. In the final session, John Webb provided a brilliant insight into how science will impact pork production – and our everyday lives – over the next 40 years.

The breakout sessions included a wide range of topics covering nutrition, recording systems, swine health, consumer trends, marketing heavier carcasses, pig transport and pork exports, many of which are summarized in this issue.

The original versions of the papers presented at the seminar are available in the full proceedings, *Advances in Pork Production*, Volume 22. To order a copy, call the Banff Seminar office on 780-492-3651, fax 780-492-9130 or e-mail [info@banffpork.ca](mailto:info@banffpork.ca).

I would like to acknowledge and thank those people that have helped me with summarizing the presentations for this issue: Geoff Geddes of Alberta Pork and Marvin Salomons. Also, thanks to Terry Hockaday and his team at Meristem Land and Science for assistance with editorial and photographs.

*Bonnie Peck*

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At the Banff Pork Seminar's 40th anniversary in January, 625 producers and industry partners from across Canada, the US and other parts of the world assembled to help us celebrate this great milestone in the seminar's history. The key to any successful event such as this is the support shown by industry partners to assemble in one location, start new friendships and business relationships, pick up pointers from our

internationally based speakers and meet with colleagues to share ideas.

We are fortunate that the value and reputation of the seminar has been able to maintain an appeal to over 600 attendees following over 3 years of very challenging economic times. There continues to be a passion to learn so that competitiveness can be improved in an industry that has seen dramatic changes and

technological advances over the years, especially the last 15 or so.

Our current industry development was accelerated in the late '90s and early 2000s with the extra margins contributed by a weak Canadian dollar. At that time too, it was generally felt that Canadian production was significantly better than that in the US which, with the currency difference, provided us a more significant advantage over our neighbours to the south. However, as pointed out by some of our speakers this year, the productivity advantage has disappeared and, as we are all too well aware, our currency advantage has evaporated.

The key to the pork industry revival is 'PROFITS'. At this time, the current prices have us back to a break even for the most part, even in the face of rising feed costs.

The Banff Pork Seminar would not be able to attract world class presenters without the terrific assistance of our sponsors and attendees, our advisory committee members from across Canada and Ruth Ball and her team who keep the event running smoothly.

Last but not least, Dr. Ron Ball, one of our committee representatives from the University of Alberta and BPS program chair for the last 13 years is retiring and was recognized for his dedication, intuition and expertise he brings to the seminar each year.

Lastly, I would like to thank the Western Hog Journal and other media for their coverage of this year's Banff Pork Seminar.

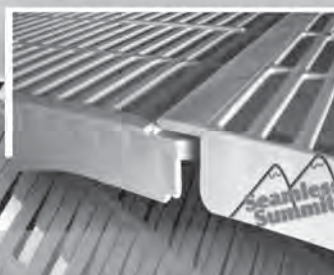
May this be a year of success, happiness and financial recovery for our industry all across Canada.

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Jim Haggins,  
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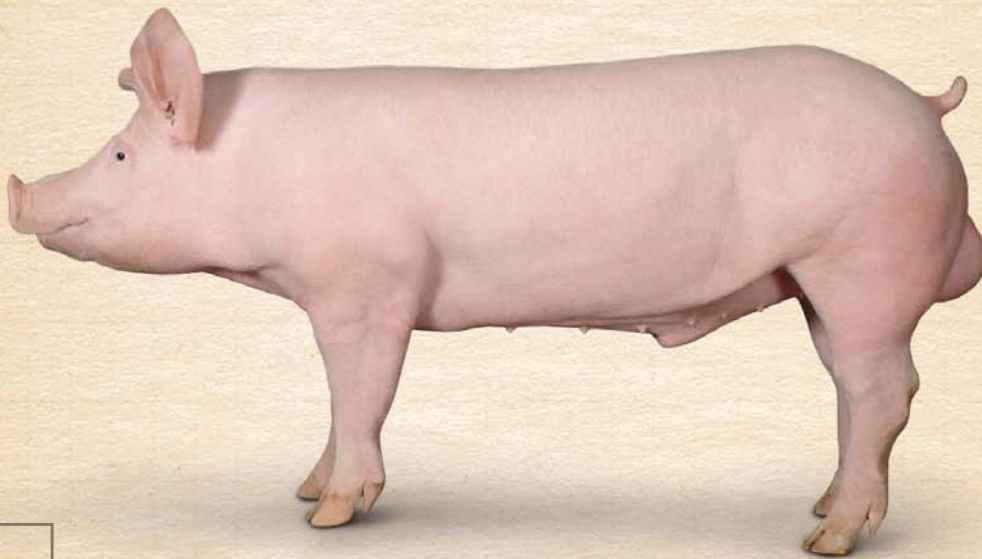
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## Traceability for livestock auctions

The federal government has announced an initiative to improve traceability at livestock markets as part of its national traceability system for livestock which is aimed at increasing market opportunities and strengthening the industry in the long term.

The Livestock Auction Traceability Initiative (LATI) is a key component of the system and Agriculture Minister Gerry Ritz has announced that applications are being accepted for projects beginning April 1, 2011.

“Consumers want to know where food comes from, and countries which can supply that information will win the business,” said Minister Ritz. “LATI will provide valuable support to the industry in meeting

traceability requirements which will, in turn, boost farmers’ profitability.”

The Livestock Auction Traceability Initiative will allow Canadian auction marts, assembly yards, feedlots, backgrounders, fairs and exhibitions, privately-managed community pastures and other high-risk, high-volume, co-mingling sites to upgrade their facilities and purchase traceability equipment to help in the identification and tracking of individual animals.

This initiative builds upon federal-provincial-territorial Growing Forward investments and will complement existing provincial and territorial programs that contribute to traceability enhancements. For information on how to apply for the program, visit [www.agr.gc.ca/lati](http://www.agr.gc.ca/lati).

## Alberta producers slam wage hikes for foreign workers

Alberta Pork and several major production companies have reacted strongly to recent wage hikes imposed

by Human Resources and Skills Development Canada (HRSDC). Producers must pay the average wage rate for the specific National Occupation Classification (NOC) code, which in the pork industry is NOC8252, Farm Supervisors and Specialized Livestock Workers. The new wage rates published by HRSDC have increased the average hourly rate by over \$3 for some areas of the province. Rates are given for nine regions and now range from \$15.18/hour for the Edmonton region to \$18.65 for the Red Deer area whereas the previous figure for Red Deer was \$15.11.

### “Wage rates for livestock workers are higher in Alberta than for any other province”

HRSDC wage rates for livestock workers are higher in Alberta than for any other province and producers are not able to pay such rates under the current economic conditions, say producers. Furthermore, producers in Alberta are discriminated against by a system that is run by the federal government but applied differently in each province. While there

are similar wage rates for Saskatchewan and Manitoba, they are not applied rigidly as they are in Alberta. Ontario has no guidelines for skilled livestock worker wages at all, although it has for general farm workers.

Alberta Pork, in a letter to Andrew Kenyon, HRSDC’s Director General, has requested immediate attention to the current wage levels, as is provided to producers in Saskatchewan and Manitoba. “The current wage rate requirements and methodology to which Alberta farmers are required to follow would indicate a fundamental error in the Canadian Government’s process,” said Darcy Fitzgerald, Alberta Pork’s Executive Director.

## Combination vaccines make flu protection more convenient

Two new swine vaccines from Pfizer Animal Health make it easier for swine producers to include flu protection in their vaccination programs. FluSure® XP/FarrowSure® Gold B and

CONTINUED ON PAGE 10

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The two new combination vaccines both include FluSure XP to protect herds from contemporary swine influenza virus (SIV) strains. "Protecting herds from influenza may not always be top of mind, and these new combination products make it easy and convenient to provide more complete protection with one product," says Walter Heuser, DVM, Swine Business Unit Director for Pfizer Animal Health.

FluSure XP/FarrowSure Gold B and FluSure XP/RespiSure are available exclusively through veterinarians. Producers should consult their herd veterinarian as to how these products may fit their herd vaccination protocol, advises Pfizer.

For more information, contact Simon Grudzien, Swine Product Manager at Pfizer Animal Health, on 514-693-4396 or email [simon.grudzien@pfizer.com](mailto:simon.grudzien@pfizer.com)

## New boar launched with a song

Top Canadian country music star, Paul Brandt performed at the launch, by TOPIGS, of the company's new TALENT boar during the 2011 Banff Pork Seminar.

"It was an easy link for us when we identified the best representation of great talent in this country," says Cam McGavin, General Manager for TOPIGS Canada. Paul Brandt is a top star in the world of country music, and our TALENT boar is top ranking in the hog industry."

During a private acoustic performance at the event, Paul Brandt, the most awarded Male Canadian Country artist in history, entertained the guests, which represented 20% of Canadian sow herds, with some of his well known songs.



Top country singer Paul Brandt, who helped launch a new boar for TOPIGS

"There has been wide acceptance of TOPIGS products in Canada and we believe the Talent boar will be no exception," says John Sawatzky, TOPIGS Sales Manager. Further information can be found on the TOPIGS Canada web site [www.topigs.ca](http://www.topigs.ca).

TOPIGS Canada also recently announced the appointment of Sergio Sosa as Business Development Representative. Based out of the TOPIGS Winnipeg office, Sergio will develop sales in Manitoba and Saskatchewan. He will also

be responsible for technical support to customers in Western Canada.

## Export boost from South Korea tariff removal

South Korea's move to temporarily remove a 25% tariff on imported frozen pork supplies is boosting pork exports from Canada. The move came after a Foot and Mouth Disease (FMD) outbreak led to the slaughter of an estimated 2.5 million pigs or

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25% of the country's pigs, forcing up the price of pork to consumers.

The duty-free period runs from February 1 until the end of June and includes a quota of 60,000 total tonnes of frozen pork, although officials also indicated the drop in the tariff may be extended beyond June.

**"The FMD outbreak led to the slaughter of an estimated 2.5 million pigs"**

The Commodity News Service Canada reported in January that the new duty-free period will prompt a sharp increase in Canadian pork exports. Before October 2010, South Korea averaged between 2,500 and 4,500 tons of Canadian pork. During October and November, Canada shipped 5,000 tons of pork to South Korea. Canadian pork shipments to South Korea during December 2010 and January 2011 are expected to reach more than 6,000 tons.

Martin Rice, executive director with the Canadian Pork Council, says that he expects the decision to create a vacuum for major pork shippers, including Canada. "The 60,000-ton quota that South Korea has removed the tariff on is already being filled quickly," Rice said. He expects Canada to fill a third of the pork product quota.

**AFAC Livestock Care Conference**

Alberta Farm Animal Care (AFAC) will be holding its annual Livestock Care Conference on April 6-7 at the Red Deer Lodge Hotel and Conference Centre. The theme of the 2011 conference is Embracing Changes in Animal Welfare and the areas of Animal Welfare Certification Programs and Codes of Practice will be addressed.

For further information, go to the AFAC website [www.afac.ab.ca/lcc](http://www.afac.ab.ca/lcc) for registration details including application and payment, or phone the AFAC office at (403) 662-8050. The early-bird registration fee (book by March 15) is \$145 and the late booking/walk-in fee is \$165, with concessions for students and ALERT line veterinarians.

**Analgesics in farrowing and castration**

Preliminary data from research at the University of Guelph indicate no economic benefit from providing analgesia to sows at farrowing or to piglets at castration.

A paper entitled "The effect of pain relief at castration and farrowing on piglet performance" by S. Taylor, R. Friendship and G. Cassar, examines the subject of castration of piglets without the use of anaesthesia or analgesia. To date,

there have been few research studies that evaluated the use of analgesia for this procedure and whether pain relief might be associated with improved piglet performance.

In the castration study male piglets either received a saline injection (control) or

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The trial results showed no apparent difference in both the average daily gain and pre-weaning mortality of male piglets in both the control and treatment groups. No difference was noted in post-castration behaviour between the two groups. The cost of analgesia was \$0.22 per piglet and it did increase the time to castrate.

A second part of the same study was directed at whether there was any economic benefit or reduction in stillbirths or perinatal death losses if sows received medication to reduce the pain associated with farrowing. The treatment group received an IM injection of 1 mL/50kg body weight of Anafen prior to farrowing and again the day of farrowing.

The farrowing trial showed no differences between stillbirth rate, weaning weights or pre-weaning mortality between treated and control animals.

The cost of Ketoprofen was \$13.05/sow/dose.

This work to date suggests that the routine use of ketoprofen to piglets at castration or to sows at parturition did not result in improved performance and was therefore not cost-beneficial. In general, the decision to use analgesia will most likely be based on ethical concerns and not on financial concerns.

### Genetiporc appoints Mario Lapierre as COO

Genetiporc International has announced the appointment of Mario Lapierre as Chief Operating Officer. Mr Lapierre's main focus will be to lead Genetiporc's significant international business growth, according to a company news release. "Mr Lapierre brings a combination of practical experience, knowledge, passion and integrity that will serve Genetiporc well in its vision to become a dominant player in the international pig genetic business," it says. Mr Lapierre has been working for Genetiporc for 12 years, with the last 5 years as General Manager and the previous 7 years as Production Manager for the Breton family corporate farms. Prior to Genetiporc,

he worked for 12 years as production manager for two other large integrated companies in Quebec. Mr Lapierre graduated from University of Laval with a Bachelor's degree in animal science.

### New PSC website gives faster access to information

A redesigned website launched recently by the Prairie Swine Centre makes it easier and quicker to find technical information. With over 5800 production research articles, and virtually every publication published by the Centre in the past 15 years, the website has become a one-stop shop for pork production information.

**"Finding publications or contacting researchers can be done in a single click"**

The new website is easier to navigate; for example finding publications or contacting researchers can be done in a single click. There are many articles and publications on lowering cost of production which are grouped together on the home page under the large Survival Strategies STOP sign

icon. The real power of the website lies in its new search engine capability. To quickly find relevant articles on a wide variety of technical papers, the scientific papers have been summarized and are searchable with PorkInsight, a modern search engine.

Communication with every aspect of the pork industry is an integral part of why Prairie Swine Centre exists, notes Lee Whittington, its President. "Although you cannot replace face-to-face meetings and telephone conversations as vehicles for helping individuals to adopt new technology, the internet is the clear winner when you are seeking speed and efficiency of communicating technical subjects." The website can be found at [www.prairieswine.com](http://www.prairieswine.com).

For more information, contact Lee Whittington on 306-667-7447

### World's fastest growing Piétrain lands in North America

Hypor has announced the addition of the Hypor Maxter to its North American terminal boar portfolio. Originating in Europe where the Piétrain is the dominant terminal

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breed, the Maxter is known as the world's fastest growing Piétrain, according to a company news release. With the European experience having been validated in recent Canadian commercial trials, semen from this new North American population will be available across Canada and the United States in 2011.

Exceptionally lean, efficient and fast growing, the Piétrain line complements Hypor's Kanto and Magnus Duroc terminal lines. The addition provides producers with a comprehensive selection of terminal lines designed to optimize on-farm efficiency while meeting the diverse needs of the North American pork industry, says the company.

Originally developed by France Hybrides in 1971, the line was acquired by Hypor in 2008 and has achieved widespread commercial success in Europe. Recent Canadian commercial trials using imported semen have validated European results and demonstrate significant opportunity for the genes in the North American pork value chain.

Hypor Maxter great grandparent males and females were imported to Manitoba, Canada in July 2010 from Hypor's Sichamps nucleus in France. Once Hypor and federal inspection processes were complete, the Hypor Maxters were moved from the isolation facility to the Lockport, Manitoba nucleus facility in November 2010. Maxter boars are also being placed in Hypor's Greenhill Gene Transfer Centre and semen will be available

for phase two commercial evaluation with strategic partners across Canada and the United States in early 2011 and for widespread commercial use in fourth quarter 2011.

### Alberta swine veterinarian wins Spectra Award

Dr. Frank Marshall has been presented with the *Spectra Friend of the Industry Award* by Alberta Pork. This honour is awarded to an individual who is not a producer and has provided outstanding contributions to the industry over a period of many years. During a banquet at their annual meeting in Nisku, the Alberta Pork board recognized Dr. Marshall for three decades of service to both animals and producers. As a Doctor of Veterinary Medicine, Dr.

Marshall devoted the first ten years of his practice to the diagnosis and treatment of all species. In 1995, he left private practice to focus exclusively on swine production medicine and herd health, establishing Marshall Swine Health Veterinary Services. In 1999, Dr. Marshall and his associates formed Western Swine Health Associates to enhance and apply their strengths throughout Alberta. They currently serve 100,000 sows in production and contribute a regular veterinary health column to the Western Hog Journal. Dr. Marshall earned widespread praise and admiration for his support of pork producers during some challenging years and is a worthy recipient of this award, says Alberta Pork. ■



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# FX Aherne Prize Winners

## Innovators honoured at Banff Pork Seminar

Three Canadian pork industry representatives were honoured for their innovative solutions to pork production challenges at the 2011 Banff Pork Seminar this week.

The winners of this year's FX Aherne Prize for Innovative Pork Production include Jules Poiron and Warren Toles of Manitoba-based AcuShot Inc., George Stahl of Veteran Colony in Alberta and Steve Brandt of Steve's Livestock Transport, also based in Manitoba.

"The innovations developed by each of this year's award winners are important contributions to the pork production industry," said Ruurd Zijlstra of the University of Alberta, chair of the FX Aherne prize committee. "This award is an opportunity for the industry to recognize those individuals who have developed either original solutions to pork production challenges or creative uses of known technology."

The awards are named after the late Dr. Frank Aherne, a professor of swine nutrition and production at the University of Alberta in Edmonton and a major force for science-based progress in the western Canadian pork industry. "Dr. Aherne was the driving force behind a number of innovations that have benefitted the pork industry for decades," said Dr. Zijlstra. "These awards honour his contribution and the spirit of innovation he represented."

Poiron and Toles earned the award for their development of AcuShot, a new technology used for needle-free vaccination. It offers reliable, accurate vaccination using power cylinder technology, which is compressed by a patented motorized mechanism. It also features onboard digital capacity to monitor injection quality.

Pork operations can use AcuShot for both spot treatments of single animals and mass-vaccinations of large populations. The battery-operated, handheld injector can be used on a

hands-free stand for smaller livestock or with a remote injection hand piece for easy use with larger livestock.

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**"Using this system, the colony has cut its loading time in half"**

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Veteran Colony near Veteran, Alberta, was awarded the prize for the colony's

design of an improved loading facility. The new design makes loading easier and more efficient both for the animals and staff, resulting in reduced animal stress and improved loading times. The main component is a changeable ramp that reduces the level of incline required for the hogs to be loaded on both upper and lower decks of the shipping trailer.

CONTINUED ON PAGE 16

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Ruurd Zijlstra (right), chair of the FX Aherne Prize committee, presenting an award to John Drost, representing Veteran Colony

Using this system, the colony has cut its loading time in half, from 35 minutes to 15 minutes for 190 hogs, and the hogs only require very minimal encouragement to move on the trailer. Loading hogs now requires only one person where before it required two or three people. The ramp operates with counterweights so one person can shift it from top deck loading to bottom deck loading.

Brandt's achievement was the development of a unique "water-loading" trailer that allows for more space to be used by the animals and an improved system for regulating temperature. It's called water loading because with its unique design water settles equally in each of its sections. A key feature of the design is axles that are set two feet further forward than those on most livestock trailers.

The trailer also has a six-foot wide side-unloading door in addition to the standard rear door. The side door means less distance to the exit and twice the space for animals to move through. The unit also has a "Muggy Mister System" sprinkler system to keep animals cool on hot days - it combines mist with water to push hot air out of the trailer. ■



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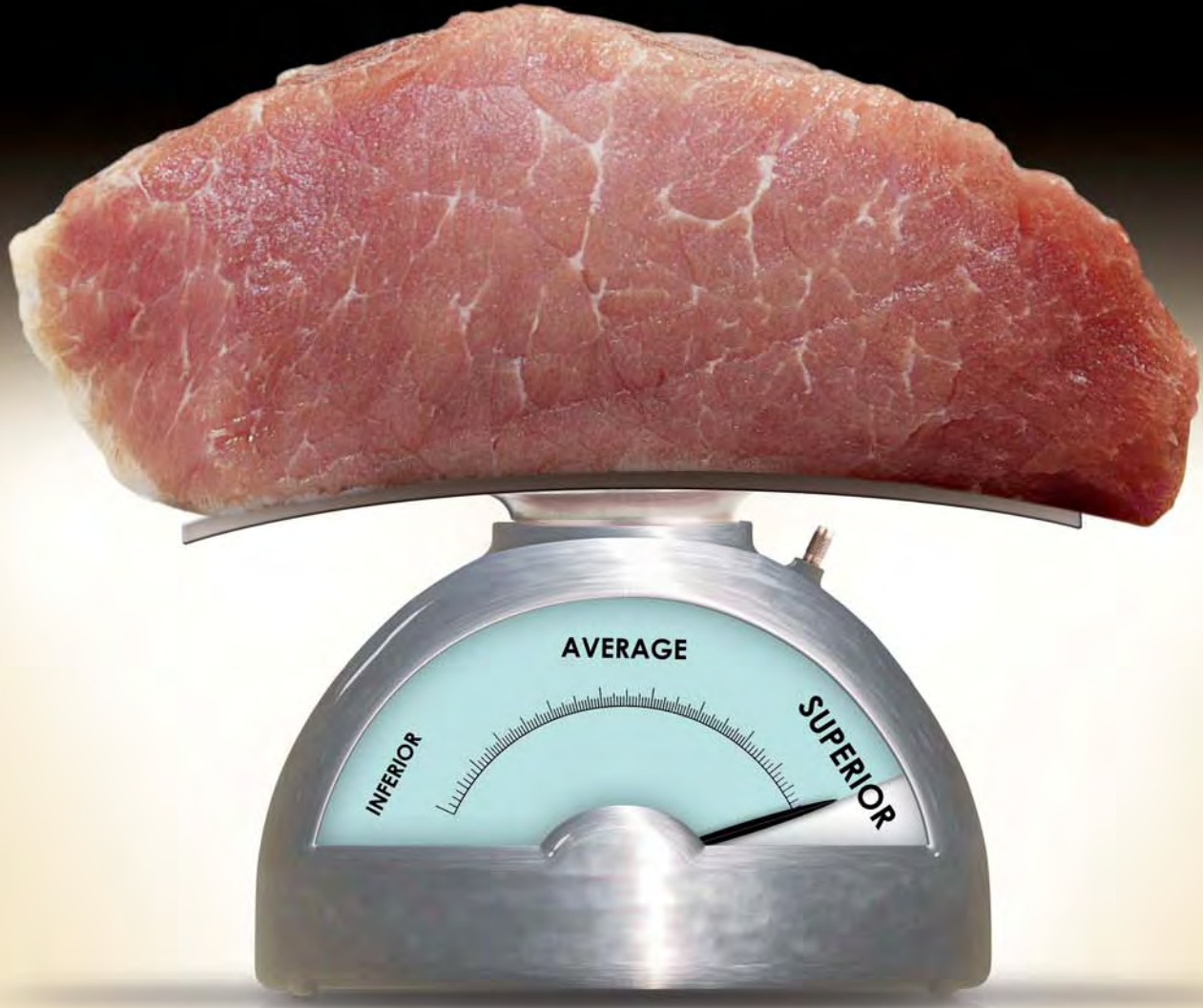
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# Graduate student competition

The best of current research is on display at the Banff Pork Seminar each year. In addition, students from various institutions have the opportunity to give an oral presentation to showcase their research efforts. Presentations are judged by a panel of industry representatives and an award presented to the top student. This year's winner was Alvin Alvarado from the University of Saskatchewan. Second prize went to Chi Zhou, from the University of Alberta.

Alvarado's presentation was "Reducing gas emissions from swine barns using zinc oxide nanoparticles." Nanoparticles are particles of 1-100 nanometre (billionth of a metre) in size, the size range of many molecules. A given weight of material with particles in this size range has a massively larger total surface area than where particle size is bigger, providing the potential to adsorb, or stick to, other molecules. It has been shown that zinc oxide nanoparticles can reduce hydrogen sulphide (H<sub>2</sub>S) and ammonia (NH<sub>3</sub>) emissions. In Alvarado's study, when liquid manure was treated with ZnO nanoparticles, the level of H<sub>2</sub>S was reduced from 700ppm to below 10 ppm, however there was no significant effect on NH<sub>3</sub> emissions. The treatment had no effect on pig feed intake, growth rate, water intake or manure production rate.



Dr. Ron Ball (left) presents Alvin Alvarado with the award for first place in the Graduate Student Competition

## Award named after Dr. Ron Ball

The Graduate Student Award has been renamed the "RO Ball Graduate Student Research Award", in recognition of Dr. Ball's service to the Banff Pork Seminar. Dr. Ball has served as program director of BPS for 13 years. During that time commercial sponsorship has quadrupled and registration has doubled for an event recognized as one of the best of its kind in the world.

With Ball retiring from the university, he is stepping down from his program director role after this year's conference, and the BPS organizing committee took time to commend his service with this special recognition. He was also presented with a painting of the Banff area mountain setting that has been so much a part of the BPS image.

The recognition was fitting for a man with a long list of accomplishments in a stand-out scientific career who has mentored over 50 graduate students, some of whom were in attendance. "Training graduate students has been the highlight of my scientific career," says Ball. "The thing I most cherish is their accomplishments when they leave and go somewhere else. I'm so proud of them. So to have this award named after me is very moving." ■



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## PLENARY SESSION: Facing forward to our future

### The future of animal feeding: Towards sustainable precision livestock farming



In the future, production will increasingly be affected by globalization of the trade in feed commodities and livestock products, competition for natural resources, particularly land and water, competition between feed, food and biofuel, and by the need to operate in a carbon-constrained economy, says Nutreco's Dr. Leo den Hartog. Moreover, he suggests, livestock production will be increasingly affected by consumer and societal concerns and legislation.

A way forward in the development of profitable modern pig production will be the concept of sustainable precision livestock farming, den Hartog believes. This aims to integrate the technological approach of precision livestock farming with the social and ecological aspects. Optimization of productivity and efficiency will play a crucial

role, as well as maximization of the profit for all stakeholders in the pork chain, he says. He discusses the necessity for and rationale behind the concept, with a special focus on animal feeding.

#### Surging demands

Between 1980 and 2010, global meat production increased from 45 to about 270 million tonnes. Growth has been concentrated in countries that experienced rapid economic growth, particularly in East Asia, and revolved around poultry and pigs. In developed economies, on the other hand, production and consumption of livestock products are now growing only slowly or stagnating, although at high levels.

By 2050, the world's population will reach 9.1 billion, 34 percent higher than today. Nearly all of this population increase will occur in developing countries. In order to feed this larger, more urban and richer population, food production must increase by 70 percent. Annual meat production will need to rise by over 200 million tonnes to reach 470 million tonnes.

#### Struggling supplies

Basic food and feed commodity prices declined from the early 1950s until about the

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## The future of animal feeding *Continued*

early 1990s. However, the food crisis of 2007-2008 forced policymakers to review the drivers of agricultural commodity prices and the long-term demand and supply potentials of food worldwide. Not only internationally traded food and feed commodity prices for particularly oilseeds, cereals and meat were spiky; but the prices of crude oil, metals and fertilizer also increased many times from 2003 to 2008.

It may be expected that volatility in food and feed commodity prices and even struggling supplies due to scarcity will continue in the coming years and, as a consequence, affect pig production.

### Meeting consumer and societal expectations

In developed markets, consumer and societal expectations are changing rapidly. Prosperity, changing lifestyles and media attention have resulted in increased awareness and concerns, and new attitudes towards food. These include both product quality and safety, and production systems. Government policies result in more stringent regulation of pig production and changes to existing production patterns. Changes in consumer preferences for meat products due to lifestyle changes, food safety concerns, health perceptions and other reasons will increasingly affect production decisions in the future.

### Towards sustainable precision livestock farming

*Sustainable precision livestock farming* integrates the technological approach of precision livestock farming with the social and ecological aspects related to consumer and societal demands. Optimization of productivity and efficiency within the constraints plays a crucial role, in addition to maximization of the profit for all stakeholders in the pork chain.

It covers the life cycle management of animals, exploiting multiple technologies to optimize feeding and applying control to achieve performance objectives, improve animal health and optimize usage of resources. Moreover, traceability and information management is an integral part of the concept.

With respect to animal feeding it aims to integrate relevant factors dealing with feed, the animal, gut micro-organisms, individual farms and their interactions.

### Potential for improvement

Productivity and efficiency in pig production have increased tremendously in the last decades, but further optimization of pig production is still possible. In pigs, productivity is, on average, 30-40% below their genetic potential, because of suboptimal conditions and health status. Retention of nitrogen and phosphorous in fattening pigs is, on average, about 37 and 44%, respectively. There is also huge variation in performance among farms and within individual pigs.

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**"In pigs, productivity is, on average, 30-40% below their genetic potential"**

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In addition to the nitrogen and phosphorous footprints, the carbon footprint of the pork chain, expressed as greenhouse gas (GHG) emissions, has the potential for improvement.

Science and technology will offer opportunities for further innovation in pig production. With respect to *sustainable precision livestock farming*, and more precisely animal feeding, several application technologies have already shown their added value or have the potential to become the breakthrough technologies in innovation.

### New technologies

A wide range of new and emerging technologies will impact the feed industry and pork production. Some examples include:

**Recombinant DNA technology** – In future, genetically modified plants may directly benefit feed producers and pig farmers with nutritional enhancement, enzyme activity, immune enhancers or even natural antimicrobial substances.

**Fermentation** will be used to upgrade raw materials, increase digestibility of nutrients and improve amino acid profile.

CONTINUED ON PAGE 22



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## The future of animal feeding *Continued*

**Marker technology** - DNA-based tests for genes or markers affecting traits that are difficult to measure, such as meat quality and disease resistance, are becoming increasingly used. This will offer opportunities because of the continuing trend towards selection for attributes such as product quality, improved animal welfare, disease resistance and reduced environmental impact.

**Bioinformatics** plays an important role in meaningful integration and interpretation of data, and systems biology in mathematical modelling. The end result will be a precise determination of the nutrient requirement of a pig under the specific conditions, for example its production phase, health status, farm management, and environment and social interaction.

**Nutrigenetics**, another nutrigenomic technology, visualizes how genetic differences between individuals can affect the response to nutrients/compounds in the feeds.

**Bacterial nutrigenomics**, which is seen as a breakthrough technology, may offer opportunities in management of the pig's gut micro-organisms.

All these powerful genomics tools will undoubtedly revolutionize the way we feed pigs and manage pig production systems.

## Biosensors and nanotechnology

Biosensor technology may offer some opportunities. A biosensor is an analytical device that converts a biological response into an electrical signal. Although it is already a multi-billion dollar business, applications in pig farming are limited. Nevertheless, there are many potential applications of biosensors of various types in pig production.

Nanotechnology refers to the field of research and application associated with particles of 1–100 nm in size (the size range of many molecules). The next few decades may well see nanotechnology applied to various areas in animal management. For example, nanoparticles may be able to affect nutrient uptake and induce more efficient utilization of nutrients by pigs.

## Information and communication technologies

### Farm automation and full system control

ICT consists of all technical means used to handle information and aid communication, including computer and network hardware as well as necessary software. Although indispensable in the whole pork chain, ICT has led and will lead into a revolutionary development of farm automation and full system control. Both are necessary for optimization of productivity and efficiency, and can significantly reduce labour costs. Automated feeding systems enable precision feeding leading to less spoilage of nutrients and together with automated climate control will result in better animal health and welfare, and higher pig performance.

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**"The accuracy of nutrient measurements and energy levels is increasing rapidly"**

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### Near-infrared spectroscopy

Over the past 30 years, NIRS has proved to be one of the most efficient and advanced tools for continuous monitoring and controlling of process and product quality in food and feed production. Current applications in feed production are

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dominated by quantitative assessments of macronutrients in both raw materials and end products. The development of new applications and the improvement of existing applications are moving fast - mainly due to improvements in ICT. The accuracy of nutrient measurements and energy levels is increasing rapidly and even the detection of certain micronutrients, undesirable substances and microorganisms seems to be feasible. Moreover, fingerprinting of raw materials and end products is becoming a powerful feed and food safety tool.

**Dynamic predictive modelling**

ICT is also the basis for dynamic predictive swine modelling programs such as Nutreco's Watson® 2.0. Such tools not only simulate nutrient requirements but also simulate responses to physical, social (health and feeding behaviour), economical and environmental changes. The new generation of predictive models focuses on nutritional optimization whereby requirements are no longer static values solely based on biological responses such as maximizing lean gain but can also be expressed in terms of economic responses. The consequence of this process is that optimal nutritional, management and marketing solutions can be identified.

**New technology access**

ICT systems enable researchers, companies and individuals to keep abreast of breakthroughs in technology, whether inside or outside their own field.

**Acceptance of new technologies**

Consumer trust and confidence is crucial for a successful implementation of new science and technologies in pig production. Managing consumer and societal acceptance needs openness and transparency. Communication with interested stakeholders, corporate reporting and building relationships with citizens and organizations will be as important as the implementation of new science and technologies.

**Conclusions**

Although improving productivity and efficiency remains an important objective, consumer and societal demands must be taken into account as well. The concept of *sustainable precision livestock farming*

integrates the technological approach of precision livestock farming with the social and ecological aspects associated with consumer and societal demands.

Animal feed plays an important role in the concept as it is the biggest cost factor in pig production. Several indicators demonstrate that further optimization of productivity and efficiency in pig production is still possible. New science and technologies seem to offer many opportunities for innovation. However, technology access and acceptance by consumers and society needs to be managed in a proper way. ■

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## PLENARY SESSION: Facing forward to our future



### Financing agriculture in the future

Future population growth will continue to perpetuate tremendous volatility in all commodities, including feed ingredients and pork, believes Mark Greenwood of AgStar Financial Services, Mankato, MN. When there is tremendous variability and predictable revenue streams are unprecedented it presents a challenge to lenders, he says. Lenders now require much more live budgeting and financial forecasting than ever before. Margin management and/or risk management of the pork production business is essential, Greenwood argues. He looks at the components of good financial management and the requirements of lenders in today's highly volatile business environment.

#### Introduction

AgStar Financial Services is a cooperative, owned by client-stockholders, and is one of 95 institutions that together comprise the Farm Credit System. It provides a broad range of financial services and business tools for agricultural and rural clients, primarily in Minnesota and northwest Wisconsin. AgStar is one of the larger Farm Credit associations, serving more than 24,000 clients and managing nearly \$8 billion in loan and lease assets.

My primary role at AgStar is managing the company's swine portfolio, representing over \$1.4 billion in loan and lease volume serving nearly 1,200 clients throughout the United States. I manage swine loans and leases and work closely with producers of all sizes. I was born and raised on a hog farm in Southern Minnesota and have been involved in the swine industry for my entire business career.

#### Price volatility

Prior to 2008, the livestock sector did not experience extreme volatility in commodity prices. If corn was above \$3 a bushel, it was considered high. Cost of production in the US over a period of years ranged anywhere from \$100-\$120 a head depending on sale weight.

Ever since 2008 we have had significant volatility in the marketplace and in all commodities. Breakeven in the pork industry went from \$115 a head in 2007 to over \$160 a head in 2008. The recent volatility can be seen even today; from

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**"The level of volatility experienced by producers in all agricultural commodities is unprecedented"**

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October 7, 2010 to October 12, corn went up over \$1 a bushel in a period of three business days. Just accounting for corn prices alone causes an increase in cost of production of over \$1.1 billion a year if prices stay at current levels. In addition, hog prices have shown significant movement in the last 14 months. In August of 2009, swine producers were receiving barely a \$100 net for their hogs, but one year later we had producers that were receiving over \$180 a head for the hogs. The level of volatility experienced by producers in all agricultural commodities is unprecedented.

#### Financing agriculture in the future

Looking ahead there are tremendous opportunities as well as challenges for people that are involved in agriculture. Every year, there are almost 70 million more people on this earth to feed. Many experts are claiming that we need to double, maybe triple, food production over the next 40-50 years. The challenge and the opportunity here is tremendous.

I believe that future population growth will continue to perpetuate tremendous volatility in all commodities. When you have tremendous variability, and predictable revenue streams are unprecedented, it presents a challenge to lenders. Lenders will require much more live budgeting and financial

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## Financing agriculture in the future Continued

forecasting than ever before. Margin management and/or risk management of your business is essential. What is your company doing to stabilize and present business plans that will have a higher degree of predictability? Access to capital requires a sound business and risk management plan.

Lenders will also need to be proactive on providing capital to clients during times of volatility. Not to fund a hedge line would be of grave risk to the client and also to the lender if the margin call is not funded. In addition, because of market volatility, rapid response to client needs will be more important than ever before. The main item in our organization is working capital and providing the amount of cash and/or working capital that is needed to run your business. Volatility puts even more emphasis on the crucial need for working capital and liquidity in the future.

### Requirements for producers to access capital

The need to have sound financial records has never been more important. A farrow-to-finish producer with 2,500 sows running a \$7 million dollar manufacturing business needs to know their cost of production. In addition, the producer will also need to know how they are performing financially on a monthly basis. Not to know this information when you are running that size business is not acceptable. Producers must know where they are from a cost and financial standpoint.

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**“The need to have sound financial records has never been more important”**

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Budgeting and forecasting are now more important than ever. We have many clients today that look at 12 month cash flows daily. They have very sophisticated financial forecasting models that give them a snapshot every day of what their company might look like in future, based on current markets along with their current risk management strategy. We see this every day from our very successful clients. You must

always look at ‘what if’ scenarios and how the volatility of the markets might influence the financial performance of your business.


### Requirements for agribusiness to access capital

If you are an agribusiness that provides feed inputs to the livestock industry, you will also have experienced the same volatility. The working capital or cash needs for managing through high volatility are also great. The main item for agribusiness is how many dollars are needed from your lender based on your past year’s volume of business. You will need to provide financial models based on grain going up \$1 a bushel and predict what operating line will be needed, in addition to what it does to your financial ratios. The other important part of an agribusiness is managing the accounts receivable. We saw numerous instances in 2008 and 2009 where accounts receivables were aged and it was questionable as to whether or not they were collectable. This will be closely monitored by your lender and a more proactive approach on managing accounts receivables will be very important. There were also times in 2008 that even the largest grain suppliers (Cargill and ADM) would not forward-sell grain due to the financial ratios of their business. This might occur again in the future if grain prices spike out of control. We are at price levels that could be unprecedented and from a lender’s view if your company’s financial ratios are stretched to a point that puts your company at risk you might need to alter your grain procurement strategy.

### Conclusion

You must be a student of and have a passion for your business. Your organization must continually work on having a better handle on what could affect the financial performance of your business. Wayne Gretzky once said, “You want to know where the puck is going, not where it has been.” Successful companies need to have that type of mindset.

Last but certainly not least, you must be above the industry average in whatever you produce and you must continually work on improving in that area everyday to survive. The opportunities for successful companies that are above average in risk management have never been brighter. ■



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## PLENARY SESSION: Facing forward to our future

### Global price and production forecast



North American hog producers lost over \$7 billion in 2008 and 2009. As expected, they responded to the red ink by reducing production, says Dr. Ron Plain of the University of Missouri-Columbia. The reduced production pushed hog and pork prices higher and most producers earned good profits in the summer of 2010,

he notes. Unfortunately, a disappointing corn harvest has forced feed costs up and hog producers are once again facing financial losses. Plain suggests that the key forces driving hog prices are exchange rates, pork trade and the strength of the domestic economy. The drivers of production costs are crop yields and biofuels policy, he says, pointing out that none of these forces are within the control of hog producers. He examines the likely trends in both input prices and market hog prices for 2011 and 2012.

#### Feed prices

Other than the price of hogs, the single most important commodity price for pork producers is corn. Historically, corn prices have been driven mostly by weather-related yield fluctuations and demand from livestock for feed. Over a third of the US corn crop is now being used to make ethanol. USDA is predicting that less US corn will be fed to livestock this year than was the case 12 years ago. Corn prices have been on a roller coaster ride for the last 4 years. Omaha, Nebraska corn prices were under \$2/bushel in early September 2006. Corn was under \$3/bushel in early October 2007, but above \$7/bushel in late June and early July 2008. Yet, by mid October 2008 corn was back under \$4/bushel in Omaha. In 2010, Omaha corn prices spent much of the year under \$3.50/bushel only to charge back well above \$5 in the fall.

The rapidly expanding ethanol industry has more than doubled corn prices and driven up the cost of producing slaughter hogs by 50%. The era of \$40/cwt breakevens for US hogs has been replaced by \$60/cwt cost of production.

CONTINUED ON PAGE 28

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**Global price and production forecast** Continued

The breakeven price for US slaughter hogs in 2011 is likely to average close to 60 cents per pound of live weight or 80

**"The rapidly expanding ethanol industry has more than doubled corn prices"**

cents per pound of carcass. Because of low corn quality from the wet 2009 harvest, hog weights were light during much of 2010. Slaughter weights increased following the 2010 corn harvest and are expected to average higher in 2011 than the year before.

**Exchange rates**

Since international trade in both pork and live hogs is extremely important to US and Canadian producers, what happens to exchange rates has a major impact on profitability. In October 1991, one US dollar equalled 1.13 Canadian dollars. By January 2002, one American dollar would buy 1.6 Canadian dollars. The Canadian hog industry prospered and grew rapidly during this period. However, the US dollar began to weaken in 2002 and by November 2007 had reached parity with the Canadian dollar. Since then the exchange rate has varied from 1.0 to 1.25 Canadian dollars per US dollar. The strong Canadian dollar devalued hog and pork exports and created hardship for Canadian producers. Conversely, the weak US dollar has been beneficial for US producers. The US Federal Reserve is expected to continue to expand the money supply in 2011 which should keep the US dollar weak compared to other major currencies.

**International trade**

Both the US and Canada hold very strong positions in world pork trade. The US is the world's largest pork exporter followed by the 27-member European Union, then Canada and

Brazil. USDA is forecasting larger pork exports in 2011 than in 2010 for both the US and Canada. Preliminary data indicate both countries exported more pork in 2010 than in 2009. USDA is predicting that Canada will export 68% of its pork production in 2011 and the US will export 20% of production.

**Table 1: Expected change in pork production and pork exports – Top 11 pork producing countries, 2010 vs. 2011**

Country	Pork production, (1,000 metric tonnes)	Diff. (%)	Pork exports, (1,000 metric tonnes)	Diff. (%)
China	+1500	+3.0%	+ 30	+12.0%
EU- 27	- 130	-0.6%	- 150	-8.8%
U.S.A.	+152	+1.5%	+ 94	+4.6%
Brazil	+ 90	+2.8%	+ 15	+2.4%
Russia	+ 40	+1.8%		
Vietnam	+ 30	+1.6%	+ 2	+15.4%
Canada	- 30	-1.7%	+ 10	+0.9%
Japan	+ 10	+0.8%		
Philippines	+ 5	+0.4%		
Mexico	+ 23	+2.0%	+ 5	+6.2%
S. Korea	+ 43	+3.9%		
WORLD	+2000	+2.0%	+ 16	+0.3%

Source: USDA/FAS

CONTINUED ON PAGE 30

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1. Fleck, R. et al. Performance of MaxiVac Excell 3, a trivalent swine influenza virus vaccine, after challenge with a genetically diverse H3N2 swine influenza virus. *Proceedings of the 18<sup>th</sup> IPVS Congress*, Vol.1, p.130  
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## Global price and production forecast Continued

The US imported a record 10 million Canadian hogs in 2007. Roughly two-thirds were feeder pigs and one-third was slaughter hogs. Shipment of Canadian hogs to the US declined in 2008, 2009 and 2010. It appears that 2010 imports from Canada were close to 5.7 million head of hogs and pigs. A strong Canadian dollar in the last few years has made exporting to the US much less lucrative, which has led to a reduction in the Canadian swine herd. The October inventory survey by Statistics Canada reported a 3.7% decline in sow numbers.

### The hog cycle

Although the average length of the hog cycle in North America hasn't changed, there has been a steady decline in its amplitude over the last 30 years. In the 1970s, a 20% year-over-year change in quarterly hog slaughter was not unusual. In this decade, it has been rare for quarterly US hog slaughter to deviate more than 5% from year-earlier levels.

Why are producers responding less to profitability today than they did in the past? Modern, large-scale hog production is simply not very flexible. Buildings are costly and time

consuming to permit and build. Once built, there is little alternative but to operate them at capacity through good times and bad.

### Inventory surveys

Producers in both the US and Canada reduced their swine breeding herd in 2009. US sow slaughter showed early signs of growth last year. Through October, it was down 9% compared to the same 10 months in 2009. Gilt slaughter data collected by my department indicates more gilts were being retained for breeding in 2010 than the year before.

USDA's Hogs and Pigs reports indicate the swine breeding herd on September 1 was 1.8% below year-earlier levels. The Canadian sow herd was 3.7% below year-earlier levels on October 1, 2010. The combined data on US and Canadian farrowing intentions indicate that third quarter litters farrowed were 2.4% below last year and forecast fourth quarter 2010 farrowings to be 1.7% lower than a year earlier. Given the trend to larger litter size, the decline in the pig crop will be significantly smaller than the decline in litters farrowed.

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**"Slow economic growth and high energy prices have left US consumers with fewer dollars to buy food"**

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Pigs per litter in the US have been above year-earlier levels for the last 28 quarters and have been up by more than 1.0% for the last 14 quarters. Pigs born per litter in Canada have been above year-earlier levels every quarter for well over a decade.

### Pork demand

The last several years have not been good ones for domestic pork demand in the US. Weak economic growth is rarely good for meat demand. Domestic pork demand is expected to strengthen should the unemployment level in the US decline.

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Slow economic growth and high energy prices have left US consumers with fewer dollars to buy food.

Pork prices should get support from high beef prices in coming months. The 2010 US calf crop was the smallest since 1950. The broiler industry was quick to respond to the 2010 profits, but is expected to slow their growth in response to high feed costs.

### Forecast for 2011

USDA's Foreign Ag Service forecast in October was that world pork production for 2011 will be 2.0% higher than in 2010 with China increasing its production by 3.0% and the rest of the world increasing production by 1.0%. The European Union and Canada are the only two major pork production regions forecast to reduce production.

My forecast for 2011 has a slight increase in US hog slaughter but a further decline in slaughter in Canada. If Canada produces fewer pigs in 2011, I expect this to have a bigger impact on live hog exports than on Canadian hog slaughter.

With reduced hog slaughter, 2012 hog prices should be higher than in 2011. However, if the weakness in the world's economy leads to continued stagnant growth, then price improvement may be modest at best.

### Conclusion

High feed costs are once again pressuring the North American livestock and poultry industries. It appears that further reduction in meat production will be needed to boost animal prices to profitable levels. Until the US government changes its biofuels policy, annual record crop yields will be needed to keep feeding costs from rising. ■

**Table 2: Actual and forecasted hog prices, US and Canada**

		Iowa barrow and gilt prices		Canadian Index 100 hog prices
		US dollars/cwt		\$ CAD/cwt dressed
Year	Qtr	Live	Carcass	Manitoba
2010	1	50.78	66.81	58.24
2010	2	60.07	79.04	67.56
2010	3	60.37	79.44	68.61
2010	4	49.56	65.21	50.00
2010	Year	55.19	72.62	56.43
2011	1*	54 - 57	71 - 75	50 - 54
2011	2*	60 - 63	79 - 83	63 - 67
2011	3*	59 - 62	78 - 82	66 - 70
2011	4*	52 - 55	68 - 72	54 - 59
2011	Year*	56 - 58	74 - 78	59 - 63
2012	Year*	59 - 62	78 - 82	66 - 70

\*forecast

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## PLENARY SESSION: Building the future on past success

### Successful strategies of European pork slaughter and processing companies



The European pork processing industry is a dynamic industry where competitive power is the key word, according to Karen Hamann of the Institute for Food Studies & Agroindustrial Development in Denmark. Companies follow a variety of successful but individual strategies.

Issues within companies, such as supply chain structures, product mix, technologies, costs, management, marketing strategies and company history and organization all have a strong impact on strategy, Hamann says. Also external factors such as competition, market development trends and changes in supply or demand impact pork processors, she adds. Consequently, a successful strategy must be developed and implemented specifically for the individual company. She provides an overview of the situation in the European pork industry and gives examples of successful strategies implemented by European pork companies.

#### The European pork industry

The meat industry is the largest subsector in the European food industry and the pork industry is the most important subsector of the meat industry measured by turnover, export shares, slaughtering and companies' sizes and internationalization.

During the last 5 years consolidation among pork companies in Europe has been very intense. By 2009, the 10 largest pork companies had a market share of 31% (of slaughtering), an increase from 27% in 2005. Industry experts anticipate that the European pork industry will be facing a new wave of cross-border mergers and acquisitions in the next years.

#### Drivers shaping the European pork industry

Costs are the most important parameter in competition and companies are very focused on cutting costs through supply chain control, marketing strategies, and increasing productivity in the plants.

Access to hogs at a competitive price is regarded as one of the most crucial parameters to control. Pork companies in Europe source the hogs through different supply chain structures. Danish Crown is a cooperative and therefore has access to hogs from the owners of the company (Danish farmers). The largest company in Europe, the privately owned German-Dutch Vion Food Group, sources hogs from contracted farmers, vertically integrated structures and from imported live hogs from Denmark and the Netherlands.

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#### "There seems to be a trend for a growing international trade in live pigs in Europe"

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There seems to be a trend for a growing international trade in live pigs in Europe. When markets are accessible for hog exporters from Denmark or the Netherlands, farmers may ship the hogs to the higher-priced markets in Germany. Prices for hogs in the Polish market may even exceed the prices in Germany. Hence, German, Dutch and Danish farmers export live hogs to Poland. Obviously, this market situation has an impact on the pork industry. For Danish Crown, differences in hog prices between the Danish and German market meant a loss of about 1 million hogs for slaughter in 2009. Figure 1 shows Danish total exports of live pigs.

CONTINUED ON PAGE 34



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Successful strategies of European pork slaughter Continued

Company strategies

Companies in Germany

The largest European pork company is Vion Food Group, which has production plants in the Netherlands, Germany and the United Kingdom. In 2005, the company's export share was 30%, but by 2009 this had increased to 35%. Vion Food's strategy may be described as "Not about more but

about better". This means that the company will keep on improving production efficiency, develop new products and emphasize customer service. In order to fulfill this, Vion Food establishes market positions by presenting volume and setting up sales offices in emerging markets such as East Europe and China. The company also has a joint-venture with the Russian meat processing company Ramfood for accessing the Russian market, particularly in the Moscow-region.

The German company Tönnies has had impressive growth rates in the number of pigs slaughtered. In 2009, the company slaughtered and processed 12 million pigs compared to 10 million pigs in 2008. No other German meat company has shown this kind of expansion. Industry sources claim that the most important success factors for the Tönnies company are:



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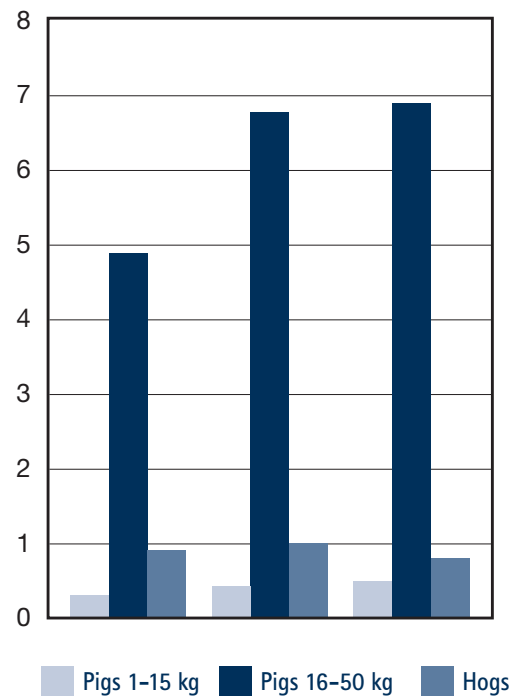


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Figure 1: Danish exports of live pigs, (million head)



- Extreme focus on cost reductions
- A state-of-the art plant with a high degree of automation
- Focus on food safety and certifications
- Increasing export activities
- A new modern pork slaughterhouse in South Russia under construction

Companies in Northern Europe

In Northern Europe, the pork industry has for many years been dominated by domestic



This imaging equipment at Danish Crown determines the most economic points to cut the carcass in order to maximize value

companies, with only a few pork companies in each country and some companies being major exporters. This is case for the Danish companies Tican and Danish Crown, which both export 85-90% of their production.

In order to reduce costs and improve competitiveness, in 2008 Danish Crown built a plant equipped with state-of-the-art technologies including robots and automation. In 2009, Danish Crown implemented a new strategy called DC Future,

with the objective of gaining at least €130 million from improved competitive power. It included the closure of two plants in Denmark, reduction of wages by 20%, and moving some production to Germany. Results were already visible after the first 12 months.

Germany is the most important single export market for Danish Crown, accounting for 25% of total exports, so it seemed obvious to establish more production there. In October 2010,

CONTINUED ON PAGE 36



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## Successful strategies of European pork slaughter *Continued*

Danish Crown announced an agreement to acquire Germany's fourth largest pork processor, the privately owned company D&S Fleisch, which has a throughput of 3.5 million hogs.

**"Germany is the most important single export market for Danish Crown, accounting for 25% of total exports"**

The Swedish and Finnish pork industries have primarily targeted their domestic markets. In the late 1990's the largest Finnish company HK Ruokatalo started acquiring market-leading meat companies in the Baltic countries. The acquisitions turned HK Ruokatalo into a multi-species processor: beef, pork, poultry and processed meat products. Later, in 2004, a joint-venture was established with Danish Crown for the acquisition of Sokolow, the largest processed meat producer in Poland. Now known as HK Scan, the company is in the process of acquiring the largest Danish poultry processing company Rose Poultry.

### Technology, innovation and research

In Europe, there is a strong interest in emerging technologies with potential applications in the meat industry. Examples in the meat industry include: natural antioxidants incorporated in

films for case-ready meat, new cultures for maintaining the red colour of sliced meat and high-pressure cold pasteurization for sliced meat. Other research themes encompass prolonged shelf-life, better nutritional profiles of products, ingredients and new processing and packaging technologies.

A new technology with applications in the red meat industry was introduced by the Danish company Chr. Hansen in 2009. It is a bacterial culture which functions by removing oxygen in case-ready meat and sliced meat products. When the culture is applied, the product maintains the "red meat" colour for a longer time and the formation of off-flavours is prevented. Application of the culture is very easy and can be done with no changes in existing production lines.

In order to stay competitive, European pork companies focus strongly on innovation, through new business strategies, new products, new technology, or changes in operations.

Innovation in products is typically driven by changing consumer demands. In Europe, consumers are very focused on quality, health and natural products. If new products also match consumers' demands for convenience, then the new product may become a market success. However, consumer preferences differ across Europe and one cannot speak of a single European consumer. For example, in northern Europe, consumers demand

natural products, organic products, and pork produced with much attention to animal welfare.

In the development process for a new processed meat product, consumer preferences in the particular market must be taken seriously into consideration. Vion Food has a Dutch subsidiary that processes vegetables and which launched a new brand – Vegetaria – in 2007. This product range is a vegetarian alternative to sausages, burgers, lasagna and similar convenience food, targeted at consumers in Germany and the Netherlands. In 2009, it had increased sales by 20% over one year.

For many years Denmark has been producing canned ham and cooked sliced ham, but there was no tradition for producing a high quality dried ham. However, the small processing company Tican took up this challenge in 2006, successfully developing a Parma-style ham. Annual production is now around 200 hams that are sold to gourmet restaurants and premium food stores, which emphasizes the product's exclusivity. The product has won several prizes in Danish food contests.

### Summary

The European pork industry is a dynamic industry where competitive power is the key word. Consolidation has been very strong and there is likely to be more of this in future. Cross-border consolidation will continue, as companies operate more internationally. There is also a trend for pork companies to diversify into new product areas such as poultry and vegetarian food. In this light, innovation will be crucial to maintain competitive power in the future pork industry. Strengthening the cooperation between research facilities and companies will also be a very important issue for improving innovation in products and technologies. ■

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## PLENARY SESSION: Our future is food

### Value-chain approach to fulfill consumer needs for wholesome pork products



For generations the socio-economic relationship between growing affluence and changing diets has shaped the meat products that companies produce and the way they market them to meet the ever-changing preferences of consumers, says Andrzej Sosnicki of PIC North America. The most prominent change of the last few years has been industry consolidation leading to bigger and more complex vertically integrated and/or coordinated pork production systems, he notes. Enhanced coordination has been taking place in all segments of the pork industry, leading to the development of many differentiated 'Meat Value Chains', a change from the traditional commodity oriented 'Meat Supply Chains'. The principles involved are based on decisions focused on value creation to satisfy consumers' expectations, Sosnicki says. He describes how value chains are better able to meet changing consumer needs for an ever-widening range of product attributes.

#### Consumer trends and value chains

The events resulting from the 2008 economic crisis are an example of ever-changing consumer behaviour. Consumers found numerous ways to cut costs, for example by preparing more meals at home, providing a welcome sales boost to food retailers. However, as the recession wore on, the trend toward frugality increased, with price becoming the key driver of consumers' purchasing behaviour and eventually food retailers began to feel the pressure. Consumers started trading down to cheaper cuts



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of meat or cheaper meats (chicken versus beef) and increasingly made their shopping choices based on price. Food retailers came under significant pressure from declining margins and declining traffic as consumers increased their use of coupons, cherry-picked the best offers and made more purchasing decisions based on price. However, while the recession still presents some serious challenges for the food and agri-business industry, opportunities that offer consumers value for money are emerging for producers, food processors and retailers.

Pork production, like many other meat production chains, is primarily a commodity-driven business. The most prominent change of the last few years has been industry consolidation leading to bigger and more complex vertically integrated and/or coordinated pork production systems.

Simultaneous to the industry consolidation, enhanced coordination has been taking place in all segments of the pork industry, including those between:

- input suppliers, such as pig genetics and animal feed providers, and producers;
- pig production segments of farrowing, nursery, and finishing;
- pig producers and meat processing companies; and
- meat processors and retail and food service markets.

**“Value chain management principles are based on decisions focused on value creation to satisfy consumers’ expectations”**

These events led to development of many differentiated ‘Meat Value Chains’ from the traditional commodity oriented ‘Meat Supply Chains’. Their management principles are based on decisions focused on value creation to satisfy consumers’ expectations. Cost reduction is an outcome of this approach, as is superior quality and competitiveness. At the same time, retail and food service businesses are also becoming more interested in consistently-sized “case-ready” pork products, better tasting product varieties and cuts of pork that are suited to today’s consumer cooking, nutritional and eating quality demands. Thus, the latest consumer demands have also led to pork product differentiation and a greater pressure on the value of meat quality parameters, especially tenderness, juiciness and flavour of fresh and value-added pork.

Given the shift away from a commodity pork market to a consumer-driven one, it has become much more important for the pork value chains to understand consumer preference, attitude and acceptance of pork

CONTINUED ON PAGE 40



Consumer demands have led to greater emphasis on the meat quality parameters such as tenderness, juiciness and flavour of fresh and value-added pork

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Value-chain approach Continued

Table 1: Consumer trends for food in North America

"Natural"	Non-GMO, Fair Trade, Sustainability, Regional, Minimalism, "Naturally Produced"
Health & Wellness	Diabetes and Obesity, Kids' Health, Food Safety, Women's Health, Allergies and Immunity, Well-Being, Energy
Age Awareness	Aging, Teens, Kids
Portion Control	Serving Size, Convenience
Globalization	Ethnic Flavors, Multinational Production Regulations
Kosher/Halal	Food Safety, Certification and Oversight, Spiritualism

as driving factors. As the competition for shelf space increases, so will the motivation to produce more value-added products having high consumer appeal (regardless of the reason). That will further foster a close collaboration in product development and marketing between value-chain players, especially between meat processors and the retail and food service industry.

Consumer trends

The key food (including pork) consumer trends in North America in the last few years are identified in Table 1.

Natural/Organic = Healthy

Americans are concerned about what's in their food, where those foods come from and potential health risks from

CONTINUED ON PAGE 42

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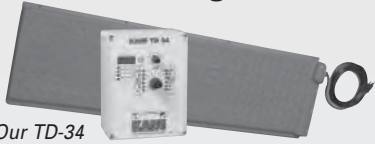
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5	36.24	68.14	90.99
5.5	39.87	63.96	100.09
6	43.49	69.77	109.19
6.5	47.12	75.59	118.29
7	50.74	81.40	127.39
7.5	54.37	87.22	136.49
<b>Cents per KWH RETURN ON INVESTMENT IN MONTHS/YEARS</b>			
4.5	1.7	1.1	0.7
5	1.5	1.0	0.6
5.5	1.4	0.9	0.6
6	1.3	0.8	0.5
6.5	1.2	0.7	0.4
7	1.1	0.7	0.4
7.5	1.0	0.6	0.4

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## Value-chain approach Continued

pesticides and chemicals in the food chain. Organic and natural products top the list of “best performing” items in the “good-for-you” product segments. This category has also acquired such trendlets as environmental consciousness and sustainability, fair trade, local production, energy conservation and “natural,” minimally processed or stripped-down formulations.

### Health and Wellness

Health and Wellness encompasses such components as diabetes and obesity, children’s health, food safety, women’s health, allergies and immunity, as well as the issues of “wellbeing” and “energy”. Although the health and wellness category is larger than organic/natural – and the two often are lumped

**“One quarter of consumers make food choices based on health”**

together erroneously – today any food product can be formulated to sport an organic label. However, not all products can wear the “healthy” tag. In general, around one quarter of consumers make food choices based on health. From an ingredient standpoint, health and wellness concerns offer the best variety of options for processors. The animal-protein industry has just started to develop that market segment.

### Age Awareness

Age Awareness overlaps with health and wellness, especially as the latter concerns the aging US population. The doubling of the over-65 population by 2030 means increased need for easier-to-open containers. The logistics involved can include everything from packaging machinery redesigns to food safety concerns based on conflicting needs to creating tamper-resistant and sanitary packaging that doesn’t require sophisticated kitchen tools.

### Portion Control

Portion Control can be considered as just a health tool but, from 2006, this trend merged health with the

perennial trend for more convenience. It became a key trend numerous food processors started to focus on to satisfy the consumers. Furthermore, in today’s market, where price is a major factor affecting purchase decisions, portion control can be utilized to ensure consistent package weights, and therefore price, within a product category.

### Globalization

Asian, Hispanic, African American and other ethnic minorities will make up more than 35% of the US population in 2012. Cultural traffic and instant global information enables a rapid diffusion of once regional preferences. Ethnic influences as part of the specialty food category reached approximately \$35 billion in 2007.

### Kosher and Halal Certification

Kosher became a separate trend with the first wave of fear over mad cow disease. Halal certification, the Muslim equivalent of kosher, has also been growing steadily. The religious oversight of food encompasses food safety, health and wellness, taste and quality, and ethnicity and spiritualism.

## Summary

Today, our production-to-consumption food system is complex, and our food is largely safe, tasty, nutritious, abundant, diverse, convenient and less costly and more readily accessible than ever before. Contemporary food science and technology contributed greatly to the success of this modern food system by integrating many disciplines to solve difficult problems such as resolving nutritional deficiencies and enhancing food safety. However, consumer attitudes will determine the acceptance of novel food items and, to some degree, the implementation of new processing technologies. ■

## PLENARY SESSION: Our future is food



### Getting pork on the consumer's plate

Chef Brad Smoliak is passionate about food and especially pork. He has been a chef in Edmonton for the past twenty years working in restaurants, hotels and private clubs. He was also co-founder of the internationally recognized Hardware Grill. Most recently, he was the executive chef for the Alberta government and consulting chef for the 2010 Winter Olympics Alberta train. Smoliak is a research and product development chef specializing in developing formulations and recipes for the food manufacturing sector for both retail and foodservice. He has recently finished studies at the University of Guelph to become a certified research chef. In his presentation, Smoliak considers creative ways of promoting pork and increasing consumption.

#### Taste and value

People are constantly searching out great tasting food for themselves and their families, Smoliak believes. "As a chef I want to help them and with great tasting Alberta pork, that helps to make my job easier," he says. "The most talked about dish and the dish that got the most surprising reviews at the Olympics was the beer-brined double pork chop with butter cabbage, chive mashed potatoes and natural reduction - pure comfort food!"

"Pork has become the new fish," suggests Smoliak. "It's the food they like other people to cook for them because they are intimidated by which cuts to use, how long to cook it for and to what doneness." Chefs cook pork to medium and above, he notes. Consumers tend to over-cook pork and dry it out.

Only certain pork cuts are widely used - loin, tenderloin and chops. We have to change that, Smoliak believes. "What about the shoulder, butt, and legs and hocks?" he asks. "When

CONTINUED ON PAGE 44

  
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## Getting pork on the consumer's plate Continued

you travel to the United States, check out the flyers from some of their more famous grocery chains. They advertise the cheaper cuts because there is a demand! European cultures use a wider variety of cuts and celebrate the pig like no other animal. Why can't we do that here?"

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### "Why don't we have a competitive bacon industry here in Alberta?"

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Smithfield Foods, based in Virginia, has a billion dollar plus industry all focused on the pig, and yet in Canada and Alberta our hog industry is dying, Smoliak notes. "I had a recent conversation with a meat broker who had just signed a contract to bring in bacon from the USA to be sold at \$7.99/kg at the retail level," he recalls. "Why is this happening? Why don't we have a competitive bacon industry here in Alberta? We have the product. Let's start small. Let's start working on a bacon industry!" he exclaims.

### Focus on the customer

Getting consumers to enjoy and use pork is the secret to success, Smoliak believes. "We could focus more on specialized pork breeds as opposed to commodity pork," he suggests. "Specialized breeds like Berkshire, in Japanese korbuta, are increasing in popularity and consumers are demanding these specialized products."

"Compare the pork counter to the vegetable market," he continues. "I recently attended a produce marketing show, showcasing the many different specialized vegetables that are available. Mini carrots are no longer considered a specialized vegetable. People are demanding more and more specialized items, not just vegetables, but in their meat products." Smoliak points out that when he was a kid growing up, beef was beef but now there is certified Angus, Kobe, grass fed, prime, organic, hormone free and antibiotic free. "The choices are not necessarily endless, but there are choices," he says. "Pork has to



Specialized breeds like Berkshire, in Japanese korbuta, are increasing in popularity, says chef Brad Smoliak

do the same. We need to give the pig some cachet!" Labelling pork as Canadian pork or Alberta pork is just not enough.

### Encouraging more pork consumption

The real question is how we get people to eat more pork, says Smoliak, suggesting a number of ways this can be achieved. First, we should make it easier for the consumer to cook pork, through better packaging and labelling, with cooking methods on the package, he says. Next, we should develop more ready-to-cook or ready-to-eat meals featuring pork. "If consumers want their pork well done, develop flavourful recipes that allow them to do that," he explains. "Make the recipes with a few easy steps and simple ingredients. Ethnic recipes lead the pack with flavour profiles, but without using tons of ingredients."

In addition, specific products should be exploited, he suggests. "Pork belly is a cut where there has been an explosion over the last couple of years. Pulled pork is another 'trendy' dish that is now seen everywhere," Smoliak notes. "Why not pork burgers?" he asks. "A restaurant in the Crowsnest Pass featured them on their menu and sold out." He also points out that promotion of secondary cuts is successful in the USA and could be done here.

"Celebrate the pig!" Smoliak exclaims.

Pork should be promoted at special events, especially where they provide the opportunity to reach the general public, he says. "Pulled pork sandwiches are popular at Oiler and Flames games," he notes.

"At the recent Grey Cup festivities in Edmonton, over 100,000 people were in the downtown area daily over four days," Smoliak recalls. "I did cooking demos in the 'Alberta House' and the feedback was great." He suggests promoting pork at large scale events by offering samples, such as Cuban pork sandwiches or pulled pork, as an

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CONTINUED ON PAGE 42

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## Getting pork on the consumer's plate Continued

example of how the drive for pork could be achieved. "The World Junior Hockey tournament is happening next year in Calgary and Edmonton - lets figure out how to get involved."

### Develop value chains

At the University of Kentucky, Bob Perry is promoting sustainable food development. He has developed a program for purchasing product from local farmers to supply his 17 resort park restaurants, in addition to outlets at the University of Kentucky. He worked in conjunction with the farmers so that they were part of the process. "Could we start that here?" Smoliak asks. "Could we work with the University of Alberta, to use more pork in their offerings at the outlets?" He suggests that we don't necessarily have to think 'outside the box', because that can scare people, but we need to think on the 'perimeter of the box'.

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**"Stop treating pork as a commodity and start treating and celebrating it as food!"**

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Transparency is very important in a value chain, Smoliak stresses. "People must be honest as to how much they need to make, how much it costs to produce, deliver and process. Everything must be included," he says. "Take the retail cuts

and build a hog on a spreadsheet to see how much it costs. That way we can see the whole picture of the hog." All parties in the chain must be equal, must make money and must be committed for at least five years, he believes.

### Conclusions

A value chain is a process and it is not going to happen overnight, Smoliak concludes. "Many years ago I worked for a restaurant chain that did something unheard of at the time. They opened their books to their suppliers, and worked together so that they both could be profitable, because we are all in the business of making money," he explains. "The restaurant chain and the supplier still do business to this day and are a model which a lot of companies have followed. People really have to work together and stay committed to the process."

Focus on the customer and what they want, Smoliak advises. "Look what happened recently to the car industry. They were not giving people what they wanted. If we don't know, let's find out instead of just offering what we want."

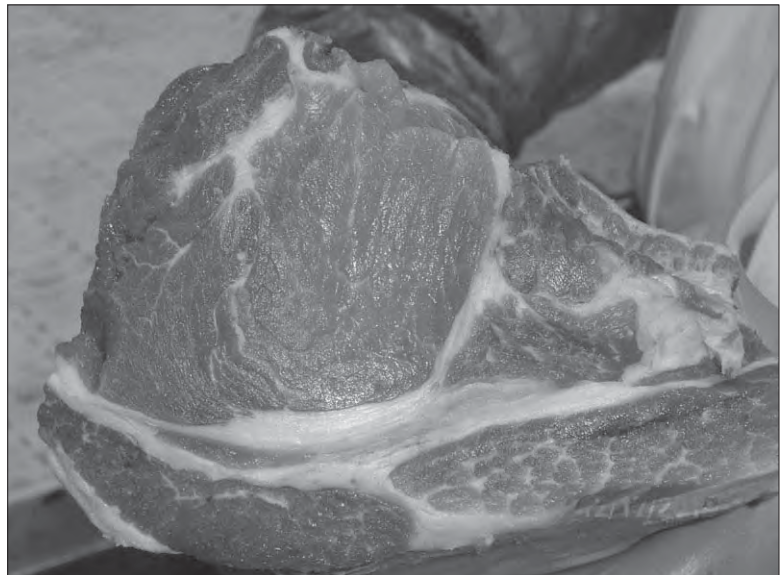
"Stop treating pork as a commodity and start treating and celebrating it as food!" he exclaims.

"A demand for pork has to be created by us!" ■



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## PLENARY SESSION: Our future is food



### Pigs, food and technology: The next 40 years

The pork industry has an outstanding record of success in improving efficiency and lean yield, says Dr. John Webb, Director of Emerging Science at Maple Leaf Foods Inc. At the same time, he notes, the industry has faced major challenges in commodity prices, exchange rates, finance, and disease. In future, the industry must be prepared to deal with continuing uncertainty. There will be much greater emphasis on meeting the needs of the consumer for health and wholesomeness, Webb believes. Success will depend on matching new emerging technologies to new business goals in tune with a changing society. He looks at some of the likely developments in technology, and asks what strategy the industry should adopt in future.

### Food and the consumer

Consumer eating habits and attitudes towards food will continue to change. Traditional meat and two vegetables family meals are disappearing. Already more than half of all households have only one or two people and a quarter of all meals are eaten on the go as snacks. The proportion of old people is set to increase, along with ethnic diversity. The digital age means that consumers will be much more informed on issues such as global warming and animal welfare.


With these changes has come the realization that food will be the first line of defence in averting huge healthcare costs in the future. Today 35% of Canadians are overweight and 24% are obese. One in 16 Canadians has been diagnosed with diabetes. Confidence in food safety needs to be recovered following the recent spate of recalls, including the Maple Leaf Foods listeriosis outbreak of 2008.

### Pigs and society

Pig production and processing will be very vulnerable to a negative public perception. On sustainability, the industry consumes water and produces effluent along with greenhouse gases. Hauling animal feed and pigs uses energy. Animal protein is much heavier on natural resources than plant protein, and in future crops can probably be genetically modified to deliver all the essential nutrients without any animals.

Livestock have been implicated in creating antibiotic resistance, for example with Salmonella or MRSA. Alternatives to antibiotics and strategies to eliminate food pathogens are badly needed. Pigs were the automatic culprit for the reassortment event that led to the 2009 “Swine Flu” H1N1 outbreak. Animal welfare issues such as castration, sow stalls and farrowing crates remain open to legislation based on emotion rather

CONTINUED ON PAGE 48



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<sup>1</sup> Armbruster, G. et al. Review of *Lawsonia intracellularis* seroprevalence screening in the United States, June 2003 to July 2006. *Proc. AASV*, 2007.


<sup>2</sup> Paradis, M. et al. Subclinical ileitis produced by sequential dilutions of *Lawsonia intracellularis* in a mucosal homogenate challenge model. *Proc. AASV*, 2005.

<sup>3</sup> Data based on ADG and F:G differences over 21 days from treatment A, B, and F; base price of market hog of \$130/100 kg, carcass yield of 79.9%, index of 108, and nursery feed cost of \$250/tonne.

<sup>4</sup> Guedes, R. Update on epidemiology and diagnosis of porcine proliferative enteropathy. *J. Swine Health Prod.* 12(3), 2004.

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**Pigs, food and technology Continued**

than science. The slaughter process itself is equally open to adverse publicity. The good news is that every one of these potentially negative aspects of pig production presents an opportunity for emerging technologies to provide a solution.

**Emerging technologies**

It is hard to imagine the advances in technology that will occur over the next forty years. The last forty saw molecular genetics and genome mapping, personal computers, the internet, cell phones, GPS, cheap air travel, and breakthrough drug discoveries. The following are some of the areas where transformational technologies are either likely, or are badly needed.

**“Both GM and cloning will be permitted as soon as the science is available to show that they are safe”**

**Animal genetics**

In future, genetic improvement will be much more heavily based on DNA testing targeted towards function. This will be much cheaper, and eventually hand-held and on-the-spot. Genetic manipulation and cloning will be accessible

technologies and affordable markers will be available to identify and regulate GM or cloned meat. We must assume that both GM and cloning will be permitted as soon as the science is available to show that they are safe.

**Personalized medicine**

Nutrigenomics is the science of tailoring food to genotype. It uses knowledge of the genotype of an individual person or pig to optimize the choice of food. People who are liable to elevated cholesterol or blood pressure can then select their diet accordingly. Eventually this could be a golden opportunity to tailor the fatty acid or amino acid profiles of pork.

**Designer bacteria**

2010 saw the announcement of the first “designer bacteria” produced entirely from man-made DNA. From a genomics-based understanding of the exact nutrient requirements of pigs or people, designer bacteria could synthesize ideal proteins or fats. Most exciting, designer carbohydrates could be made using carbon dioxide drawn from the atmosphere. This could be one answer to global warming, removing greenhouse gases, providing a novel source of either feed or biofuels and removing the need to haul cereals long distances. Designer bacteria might also be harnessed to attack pathogens and reduce greenhouse gas emissions from effluent.

**Synthetic meat**

The spectre of artificial meat, either by culturing muscle or designer DNA, has been on the horizon for some years. Already attempts at pilot scale production have been partially successful. The main claims would be that it is environmentally friendly, very healthy for the consumer in terms of ideal fat and protein, free from food pathogens and possibly even aseptic. The counter-claim would be that real meat is natural, wholesome and full of trace vitamins and minerals. It would then be essential to remove any stigmas associated with welfare, safety, and sustainability of animal production.

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## Pigs, food and technology Continued

### Food safety

As recent recalls have shown, ready-to-eat meat is highly vulnerable to contamination between cooking and packaging. Very harmful bacteria such as *Listeria monocytogenes* are ubiquitous in the environment, so elimination from livestock would not be the answer. The solution would be some form of post-packaging kill step once the container is sealed. The obvious technology would be irradiation, but at present there is large consumer resistance. Some plants are now moving to pharmaceutical style sterile rooms for packaging. Robotics could also reduce the need for human contact.

### Nanotechnology

The European Commission recently proposed a definition for nanoparticles as ranging from 1 nm to 100 nm. Though some way off, the promise is that nanotechnology can facilitate delivery of micronutrients and drug therapies. In the food industry it might be applied to delivering functional foods, improving taste, controlling pathogens to extend shelf life, and biodegradable packaging. Nanostructures can be designed to have specific physical properties. One example would be a fat substitute made from an air-filled protein emulsion micro-structure that has all the sensory properties of fat without the high energy content. At present there is great

uncertainty about the safety of very small nanoparticles that might pass through cell walls.

### Quantum biology

At some point it is likely that wet chemistry and microbiology will be superseded by quantum mechanics. DNA sequences will be recognized by their energy signature which will be read by electromagnetic waves. Such a technology might allow "instant" genotyping and genomic selection of newborn piglets. Another application might be real time scanning for diseases either for individual animals or a whole pen or barn. One can imagine a further step of destroying the pathogens by transmitting a counter-wave that disrupts DNA or RNA. For the processor, this could offer on-line scanning for pathogens, and possibly sorting of carcasses based on their nutritional properties.

### Strategies for the future

Again it is impossible to predict which technologies will prevail, along with the economic and social conditions that might evolve over the next forty years. The strategy must be to closely monitor emerging technologies and trends, and to be prepared to respond accordingly.

### Understand the consumer

The first step is to understand how the consumer is thinking, and be prepared to meet any concerns head-on. Big picture, the industry needs to provide great-tasting and safe food that is healthy, easy to prepare, and with the proviso that it is good for the environment and good for animal welfare.

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**"The message that pork is nutritious and safe must be loud and clear"**

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### Communicate

Industry must be proactive in winning public confidence. The message that pork is nutritious and safe must be loud

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and clear. The media must be given firm guidance on emergencies like the 2009 H1N1 “swine flu” outbreak. If genetic modification is approved in livestock, the public will need clear information on the position that the pork industry is taking. Consumers also need to hear that producers care about animal welfare.

**Innovate**

Innovation is not just about technology. It is simply a new way of doing things such as finding a new market in the aging population. Blackberry (RIM) and iPod (Apple) are leaders in technical innovation. What made them successful was that they filled an identified need, and they continue to delight the customer. Maple Leaf Foods spent four years developing a highly innovative SNP and web-based DNA traceability system for pork, but it was never used due to the effect of exchange rates on exports. “Open innovation” lowers the financial risk by trawling existing knowhow and solutions from outside the industry, and a number of companies now provide this service.

**Science base**

The industry needs a strong base of fundamental science to protect its competitive position. For this it will be important to communicate research priorities to government and academia. To maintain its competitive edge, the industry will surely need to return to the vexed question of how research is funded. The “valley of death” for publicly-funded emerging technologies that fail to cross the funding gap to near-market development needs to be overcome. Far too much of top scientists’ time is spent on applications for short-term funding. Long-term core funding is needed to focus on widely agreed objectives that benefit the industry, the consumer, and, where healthcare is concerned, the public purse.

**Conclusions**

For the foreseeable future the industry will need to deal with major uncertainty. There will be a shift towards technologies that will improve public health and the environment and boost public confidence. A further challenge will be to capture the added value of these technologies in higher profits that can drive research and innovation. A single strong point of contact is needed with the consumer, government and academia. With all the recent focus on short-term survival, some effort now needs to be directed to a longer-term strategy to compete with alternative sources of protein and to understand and manage consumer attitudes towards pork. ■



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## BREAKOUT SESSION

### Building Canada's future in exports

Summarized by Marvin Salomons

The Canadian pork industry relies heavily on marketing its pork to the world. For many years Canada was ranked as the top pork exporter, a position the US has dominated since 2006. Yet pork meat exports are the critical piece that keeps Canada in the business of raising pigs. Without export markets the Canadian industry would not resemble what it is today. In this breakout session four experts in the export field expounded their thoughts on where and how Canada needs to be positioned in export markets.

First, Michael Young, Canada Pork International's (CPI) Vice President of Technical Programs and Marketing Services, set the stage outlining the perceptions and attitudes about Canada's pork quality in priority markets. Young focused on the results of a 2007-08 CPI study. He stressed it was a major and important audit of our markets with a lengthy detailed report. The entire report is available from CPI for those wanting the complete details.

CPI analyzed all export markets of interest to the Canadian pork industry to ascertain attitudes and perceptions.

CPI posed questions that needed answers:

- Who is Canada competing with and what brands stand out?
- What standards are important to customers and can we differentiate?
- Where are the opportunity gaps to improve Canada's competitiveness?
- When will Canada bring a value proposition to the table for success?
- How will Canada use this information to improve our market position?

Face-to-face and telephone interviews were conducted with 230 buyers, trade officers, processors and packers in eight priority Canadian pork markets (Canada, USA, Mexico, Japan, Hong Kong, South Korea, Australia, and the EU). Respondents were only informed at the close of the interview that this was a Canadian study so CPI felt the information was not biased.

#### What the audit found

Brands are important when it comes to recognizing quality. Overall US brands have the highest brand recognition when it comes to quality, with the exception of Japan and Canada. Audit respondents ranked US (54.5%), Canada (39.7%), and their own local ones (24.6%) as the top three brands of choice. Canadian brands compete head-on with US brands in every market including Canada. When it came to Canadian brands Olymel, Maple Leaf and DuBreton were the brands that stood out.

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**"Overall US brands have the highest brand recognition when it comes to quality"**

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Meat colour and texture were ranked highest when it came to purchase decisions. "The customer is looking for pork that has a consistent reddish pink colour, firm texture, and has good flavour and juiciness," Young says. "Water holding capacity, tenderness and marbling are also important. As for supplier attributes, our customers want supply partners who are flexible, highly skilled and can deliver a wide range of specifications. Price, value, yield and packaging are also major factors."

It does not stop at the processor as export customers see food safety and traceability from the farm to the plant as a top priority. "The audit verifies this," commented Young. Country of origin and trust are strong emotional drivers in making decisions on suppliers with marketing, animal welfare and environmental programs a significant part of the decision. Young indicated CPI is using this information to improve our competitive position and continually measure the performance of Canadian pork in its key export markets. CPI plans to repeat the audit this coming year.

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CONTINUED ON PAGE 54



Don McDermid, DVM

# From the Vet

## Single-dose treatments return multiple benefits

The way we treat certain swine diseases has changed dramatically in the last decade. Research developments have provided new options for improving herd health and the tools available for treating, controlling and preventing disease.

One of the most significant developments has been single-dose treatment antibiotics. A single injection delivers sufficient levels of active ingredient, for an extended length of time, to treat and control conditions like swine respiratory disease.

### Less labour

Single-dose treatments are an important development for pig health and for pig producers. One of the big practical differences is less time and labour required for marking, sorting, handling and injecting pigs.

### Improved compliance

Just as in human medicine, swine medication is only effective when used as prescribed. The availability of a single-dose program to deliver complete treatment means compliance is a simpler, one-step process. And better compliance results in better outcomes.

### Reduced animal stress

Pigs in need of treatment are already stressed as their immune system gears up to fight off disease challenges. Administering a single injection minimizes additional animal stress, and helps animals recover quickly. Many single injection treatments also have lower injection volumes to further reduce animal stress.

*For more information about the benefits of single-dose treatment options for your herd, talk to your herd health veterinarian.*

*Replacing multi-dose treatments with single-dose programs improves cure rates and reduces the costs, labour and animal stress associated with re-treating pigs.*

## Building Canada's future in exports Continued

### Market access is key

Jeffrey Clarke, VP of Sales-Export and Industrial at Olymel indicates that the key to conducting business globally is product differentiation and targeting those products into markets that offer the best value. Market access is key, cannot be taken for granted and defines who is in the elite group of pork exporters. Clarke says countries like Brazil have yet to become a major threat because of market access issues. The reputation of the country is important and factors from feed quality, animal health, food safety programs and even the political situation link market access to the value proposition in that market.

We need to understand and be flexible with the customer and their business according to Clarke. We need to give them precisely what they want from product specifications, packaging, shipping, and try to be unique to their

business. To be successful exporters, we have to move away from commodity marketing and offer a different value proposition to the customer that includes offering them specific cuts, consistent and high quality, and a marketing service 365 days a year. The strategy cannot be the same for every market so flexibility is key.

### Achieving quality exports

How important are exports, how do we measure quality, what is high quality, and finally how do we measure it? These are all questions Heather Bruce, Associate Professor of Meat and Carcass Science at the University of Alberta says that we need to really understand. Bruce, who has been at the University since 2008 following a stint leading a muscle science research group in Australia, outlined the important factors in achieving export quality pork. Quality is key when it comes to exporting pork. The US is Canada's highest value market when it comes to pork export volume with Japan a close second. Bruce showed when you take the dollar value and divide by the volume you get a different picture. Canadian pork into a Japanese market is valued at \$3450/tonne, Australia \$3150, the US \$2860, while pork into a Chinese market is only valued at \$1097/tonne.

Pork quality encompasses many characteristics that differ widely

based on the target market. For some product safety is key while for others healthfulness or flavour is more important. For most markets product safety is expected and not negotiable. Bruce says that despite the many

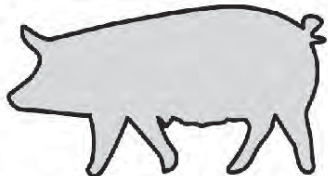
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**"For most markets product safety is expected and not negotiable"**

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differences in what defines quality across countries there are similarities in consumer preference of pork appearance at purchase with colour being the most important followed by fat cover, drip and marbling. For example pork flavour is the most important factor in Denmark, Norway and Sweden while tenderness is most important in Ireland.

Understanding each marketplace is crucial. In one example Bruce highlighted the Australian market, now one of Canada's premium markets. Australia has a high incidence of PSE in their pigs, have low levels of marbling in the meat, and markets intact males. Canada entered that market in 1990 and found the Aussies preferred our pork because Canada's pork doesn't have those issues and we were able to deliver a quality and taste they wanted. "Every market is different and we need to be sensitive to what the people in that country want," says Bruce.



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Bruce outlined the work her group and others are doing to determine what constitutes an ideal pork meat product that both Canadians and our export markets prefer. Tenderness, dryness, drip loss, marbling, aging, cooling, and pre- and ante-mortem factors are many of the things being researched. Taste panels play a big role. Bruce says we need to get to know our product as well as our customer. “We need a product that is unique to Canada, one that is differentiated enough to achieve the rarefied status – like Canadian bacon is” stated Bruce. Canada needs a product that can only be produced in one place but exported globally and of course we need to become the benchmark for the rest of the world.

### Exports are important so what about improved EU access?

The European Union is a big market with 500 million people who have a huge total purchasing power. Pork meat imports comprise less than one third of EU consumption with pig production and pork exports declining. “Tariff Rate Quotas (TRQ’s)” in place in the EU are a combination of quotas and tariffs. Within the TRQ’s, there are quotas with reduced tariff rates amounting to a nominal 70,390 tonnes. Within the TRQ different cuts of meat also have specific import duties. Despite this the total quota on pork represents only 0.5% of total EU consumption. Even so the EU remains an exciting market. Per capita consumption is high, it’s a high priced market, consumers on average are well off and like pork; but prices remain sky high due to massive barriers.

No stranger to the Banff Pork Seminar, Kevin Grier, Senior Market Analyst with the George Morris Centre, highlighted work he completed over the past several months analyzing access to the EU market. Commissioned by the Alberta Government, Grier was asked to determine what a free trade agreement might mean to Alberta’s pork industry and how the Province’s pork industry was positioned relative to the EU and whether it could compete.

Quota tariff barriers are daunting obstacles when it comes to getting more access to the EU market. “Even more daunting are the non-tariff barriers such as EU plant certification and production protocols at the farm level,” says Grier. This is an imposing obstacle to Canadian pork. The EU protects its pork industry plus its consumer. European’s prefer chilled products with the biggest countries being the biggest importers. Grier showed where imports go but noted the amounts are really small and not really going into consumer markets. “Yes we

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### “The EU protects its pork industry plus its consumer”

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do ship pork there but most of it is servicing companies like cruise lines,” cautioned Grier. He also noted that the EU doesn’t like a lot of the things we do – such as how we package, the drainage in our plants, our wood pallets, and so on. There is a long list of non-tariff barriers that need to be addressed. Smaller plants can make a quicker play for this market as they can adapt plants quick and segregate product where needed.

### Update on EU trade negotiations

Grier commented on recent Canada-EU trade negotiations held December 2010 in Ottawa. The outcome was positive with Grier noting Canada’s Trade Minister wanting an agreement finalized by the end of 2011. What is the likely outcome? “Impossible to tell” says Grier. “(Food consultancy) GIRA is saying the meat industry will not likely be happy”. What is Canada going to have to give up was raised as a question? For starters the EU wants access to Canada’s dairy industry but that is unlikely to happen, commented Grier. On the surface the EU remains an excellent opportunity but those close to the issues don’t see it as a major market in the foreseeable future. “We can beat their plants hands down so we don’t need to have an inferiority complex regarding the EU,” concluded Grier. ■

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## BREAKOUT SESSION

### The challenging future of feed costs

Summarized by Bernie Peet

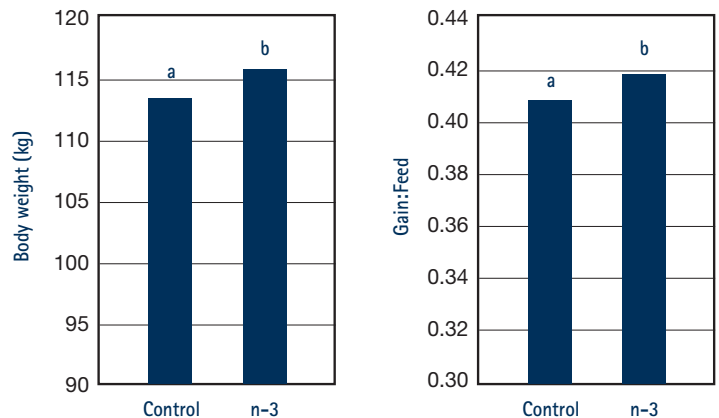
### New developments in feeding programs for weaned pigs

The first diet the pig consumes is not a pre-starter pellet placed in a feeder at weaning but the nutrition received from the sow during gestation, believes Joel Spencer, of JBS United Inc., Sheridan, IN. The "second phase" ration is the maternal milk provided during lactation and the starter feeds the third phase. Understanding how all these phases of production are nutritionally linked together provides tremendous opportunities to rethink traditional nursery feeding programs. He considers some recent developments that have the potential to improve growth of the young pig. The impact of sow nutrition

Recent research has shown that sow diets fortified with protected n-3 polyunsaturated fatty acids (DHA and EPA), result in improved energy stores (glycogen) in piglet liver and muscle. When energy intake is lower during the weaning period, piglets with improved nutrient utilization and energy stores will have improved viability. Work at Iowa State University showed improvements in post weaning performance when sow diets were supplemented with these fatty acids (Figure 1). The estimated cost is approximately \$0.35 to \$0.50/pig.

Selenium yeast can significantly increase the selenium content of milk and help to reduce oxidation of tissues during periods

Figure 1: Wean to finish performance of pigs from sows fed either control diets or control diets supplemented with protected n-3 fatty acids during gestation and lactation (P < 0.05).



From: Gabler et al., Iowa State University, unpublished research.



of stress such as after weaning. The cost of supplementation during lactation usually costs less than \$0.02/pig.

The main opportunity described here is to manipulate the piglet's energy stores, improve their ability to utilize nutrients and improve the antioxidant status in the nursery period by altering the sow's diet. New developments in this area will continue to reshape nursery feeding programs, as trying to implement these technologies at weaning may be too late, and/or more costly.

**Timed nutrient delivery in the nursery**

Stimulating early feed intake in pigs is critical. Each hour that elapses without dry matter intake reduces the piglet's intestinal integrity and increases the opportunity for pathogenic bacteria, reduced nutrient utilization and allergic reactions to dietary components. All three of these consequences will reduce the ability of the weaned pig to perform optimally.

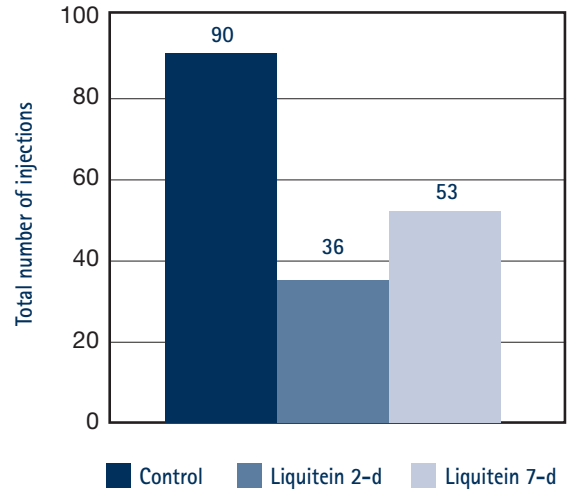
A common strategy in pre-starter diets is to include animal plasma to stimulate feed intake and promote improvements in weight gain. Plasma provides immunoglobulins and functional proteins that improve nutrient utilization and promote intestinal growth. A new liquid supplement (Liquitein™) allows producers to provide these proteins immediately at weaning through the water line.

**"Each hour that elapses without dry matter intake reduces the piglet's intestinal integrity"**

Provision of Liquitein™ immediately post weaning has improved dry feed intake and growth rate the first two days post weaning, resulting in reduced nursery variation, improved growth rates, and reduced number of pigs that fall behind. Further research found that supplementing Liquitein™ for two days achieved most of the benefit of Liquitein™, and dramatically reduced the number of antibiotic injections (Figure 2).

A water supplement that stimulates dry feed intake is very unique. It usually costs less than \$0.10/pig to supplement for 2 days at a 1:128 induction ratio.

Figure 2: Effect of Liquitein™ supplementation (1:128) for either two or seven days immediately post weaning on the number of antibiotic injections given during a 39 day nursery period<sup>1</sup>



<sup>1</sup>Values represent the number of individual injections given per treatment (n=12 pens/treatment with 27 pigs/pen).

When feed intake reduces rapidly, pathogenic bacteria can flourish and nutrient absorption is compromised, resulting in scours and higher medication costs. Vaccination protocols during the nursery phase can have a dramatic impact on feed intake. If a dietary change is made at the same time as vaccination, this puts multiple stressors on the pig at the same time, which may provide enough opportunity for bacteria to take hold. It is suggested that a dietary change occur 48 hours prior to a vaccination, or 48 hours afterward. This will help the pig to recover from vaccine reactions and transition easily.

**Conclusion**

Thinking creatively about providing nutrients through other mechanisms (sow, water line) will have to be exploited so that we take full advantage of the pig's genetic potential. This concept will allow nutrients to be "ready to use" during the weaning process, and at other targeted periods during the nursery period.

CONTINUED ON PAGE 58

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MSG

## The challenging future of feed costs Continued

### Benefits and limitations of feeding corn DDGS to grower-finisher pigs

Corn dried distillers grains with solubles (DDGS) has become the most popular, economical, and widely available alternative feed ingredient in US swine diets, notes Jerry Shurson from the University of Minnesota. There has been a tremendous economic incentive for pork producers to increase dietary DDGS inclusion rates to 30 to 40% in grower-finisher diets, saving \$3-7 in cost per pig, he says. However, some problems have been associated with high levels of DDGS, including variation in nutrient content and digestibility, inconsistent responses in carcass yield and reduced fat firmness. Shurson summarizes the key nutrition and feeding management factors that affect the economics of DDGS use in grower-finisher diets.

#### Determining value and managing nutrient variability

Fat, fibre, ash, lysine, tryptophan, and phosphorus concentrations are the most variable of all nutrients among DDGS sources. Variation has increased due to differences in the production process within the many plants. To manage the diversity among DDGS sources, some commercial feed manufacturers are requiring identity preservation of their choices of DDGS sources, and are limiting the number of DDGS sources on feed company's preferred suppliers list.

#### "Some commercial feed manufacturers are requiring identity preservation of their DDGS sources"

Commercially available analytical tools can greatly improve purchaser and end user capabilities to identify DDGS sources that provide the best nutritional and economic value. There are also several DDGS value-calculator tools which are extremely useful for determining the actual economic value of DDGS in specific livestock diets. The most comprehensive of these was developed at Iowa State University and is useful for

a wide variety of diets and animal species (<http://www.matric.iastate.edu/DGCalculator>).

#### Effect on growth performance

The majority of studies show no change in ADG (72% of experiments), ADFI (65% of experiments), and Gain:Feed ratio (64% of experiments), with the others showing either increases or decreases in performance. In most of the experiments where ADG was reduced, a reduction in ADFI was also observed. This reduction in ADFI may have been due to using lower quality DDGS sources.

#### Effect on carcass characteristics

In 10 experiments where pigs were fed diets containing up to 30% DDGS, carcass dressing percentage was not affected, but another 8 trials showed a reduction. If dressing percentage is reduced from feeding DDGS diets, we can expect about 0.03% carcass yield reduction per 1% DDGS in the diet, but some studies suggest that withdrawal of DDGS for 6 weeks prior to harvest can prevent reductions in yield. However, the increased diet costs resulting from reducing or eliminating DDGS in order to avoid a potential slight reduction in carcass yield are usually too high relative to the value of slightly heavier carcasses.

#### Effects on pork quality

Adding DDGS to grower-finisher diets does not affect muscle quality, eating characteristics, and shelf life of pork, but can negatively affect belly and pork fat quality, especially at high (> 20%) dietary inclusion rates. Reduced pork fat quality has been a concern of pork processors; however, there are no accurate, inexpensive, and fast methods of determining pork fat firmness in commercial pork processing facilities. Consequently, it is difficult to quantitatively differentiate pork carcasses based on pork fat firmness.

DDGS contains approximately 10% corn oil, and is comprised of approximately 60% linoleic acid, which is a long-chain, unsaturated fatty acid. Feeding diets containing high amounts of unsaturated fatty acids, particularly linoleic acid, can reduce fat firmness and increase the amount of unsaturated fatty acids in pork fat.

#### Feeding and formulation strategies

To minimize the negative impact of feeding DDGS diets on pork fat quality, the most practical strategy is to reduce the dietary inclusion rate or withdraw DDGS from the diet for a time period prior to slaughter. Feeding wheat and barley based diets will result in much lower levels of unsaturated fat than when feeding corn-soybean meal diets. Also, withdrawing corn DDGS from wheat and barley based diets is a good strategy compared to feeding 30% DDGS continuously.



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Adding conjugated linoleic acid (CLA) to DDGS diets fed to finishing pigs has consistently shown an improvement in pork fat firmness. However, the cost effectiveness of adding CLA to finishing diets is currently questionable. Adding more saturated animal fat sources to DDGS diets has resulted in inconsistent responses on pork fat quality.

**Conclusion**

Commercial pork production operations in the US have reduced feed cost by \$3 to \$7/head by adding DDGS to the diet, depending on its price and nutrient value. While producers have achieved excellent growth performance and carcass lean %, reduced belly firmness and softer pork fat has become a concern for pork processors. This has created a dilemma for some pork producers who are being asked to reduce diet inclusion rates of DDGS or the length of time it is fed, as this increases feed costs.

**Cost-effective feeding strategies for grow-finish pigs**

Feeding programs are evaluated by a variety of methods including feed cost, feed cost/kg gain, Revenue Over Feed (ROF), and Margin Over Feed and Facility Cost (MOFFC), explains Betsy Newton, of US feed company Akey. In order to determine the most cost-effective feeding strategy for grow-finish pigs, ROF (or MOFFC) should be used when formulating feeding programs, she believes. The specific feeding strategy which results in the highest profit opportunity is often dependent on feed costs, Newton notes. When feed costs are low, emphasis is placed on feeding strategies resulting in the highest daily gain. When feed costs are high, emphasis switches more toward gain per kg of feed. She summarizes some of the nutrition and management strategies that should be considered when developing a cost-effective feeding strategy.

**Dietary energy**

Feed efficiency improvements from high energy vs. low energy diets are well documented. Feeding increasing levels of dietary energy from liquid fat suggest up to a 2% improvement in efficiency for every 1% added fat and ADG can improve 1% for every 1% added fat. The magnitude of the growth performance response to added fat is often less in winter months when intakes are higher. Fat: corn ratios need to be less than 3:1 for fat to be cost effective based solely on feed conversion. If additional gain is valuable (as would be the case in space limited systems), fat:corn ratios greater than 3:1 may be cost effective.

**Alternative ingredients**

The decision to use by-products such as DDGS and how to use them depends on many factors including shadow price, growth performance objectives, by-product quality, accuracy of nutrient prediction, mycotoxin levels, and carcass yield/quality objectives. The most important strategy for utilizing by-products in swine diets is centred on rapid and accurate nutrient analysis of each source under consideration and the resulting shadow price of the by-product in diets. Addition of large amounts of by-product to a cereal grain based diet may decrease dietary energy concentration and negatively affect feed efficiency. However, if diet cost savings are large enough, ROF may be improved, making by-products a valuable tool and a staple of swine diets for the foreseeable future.

**Crystalline amino acids**

Crystalline amino acids are used to reduce diet cost, reduce excess levels of intact protein, reduce nitrogen excretion, and improve the dietary amino acid balance. When formulating diets with crystalline amino acids, setting minimum ratios of essential amino acids relative to lysine is critical to maintain the proper balance of amino acids for protein accretion and growth. If conventional protein sources are expensive and crystalline amino acids are cheap, savings of many dollars per tonne can be achieved.

CONTINUED ON PAGE 60

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## The challenging future of feed costs Continued

### Additives

The decision to include a feed additive depends on whether it reduces or increases feed costs, and if it does, whether it consistently improves feed efficiency or ADG in research trials.

One additive that can reduce feed cost without affecting performance is the enzyme phytase. Phytase reduces diet costs by replacing expensive inorganic phosphate sources, and when assigned the proper phosphorus release value, results in equal performance and decreased phosphorus excretion by pigs.

### "Phytase reduces diet costs by replacing expensive inorganic phosphate sources"

The economics of Paylean® depend on the inclusion level and the duration of Paylean feeding. In the US, most producers include Paylean at 5 to 10 ppm in the last finishing diet. Addition

of 5 ppm of Paylean for 21-24 days prior to slaughter can improve feed efficiency by 10-15% and ADG by 10%. Few growth performance benefits are obtained above the 5 ppm level and in order to see a cost benefit of the higher levels of Paylean, carcass premiums must be achieved.

### Management strategies

Marketing strategies often dictate feeding strategies. When pigs are marketed on a fixed weight basis, market price dictates the optimal market weight and days are flexible. In this situation, G/F may dominate over ADG as the driving force behind formulation decisions. When days are flexible and feed costs are high, it is possible to explore feeding strategies that have little effect on efficiency but slightly reduce gain in exchange for feed cost savings.

Barrows and gilts have different nutrient requirements at each phase of production. Where it is possible to feed

barrows and gilts different diets, this avoids overfeeding lysine to barrows or underfeeding it to gilts. The savings in feed cost that result from this practice can range from \$0.25 to 0.40 per pig.

Phase feeding allows pigs to be fed closer to their nutrient requirements at each stage of growth and prevents overfeeding of expensive nutrients. Phase feeding programs should be designed in a way that enough diet phases are fed to improve accuracy and timing in the supply of nutrients, but not so many that management becomes complicated and induces errors in implementation of the strategy.

Fine grinding of cereal grains improves efficiency of feed utilization and may lead to improved growth performance. It is not uncommon to realize a 1.5% improvement in feed efficiency for every 100 µm decrease in particle size from 1200 to 500 µm. Pelleting swine feed can improve feed efficiency by 4-6% in all phases of production due to increased diet digestibility and reduced feed wastage. While pelleting increases diet manufacturing cost, improvements in feed efficiency and feed ingredient costs usually more than offset it, resulting in savings of \$1-3/pig.

### Genetics

Adjustment of diets and weight phases according to the lean growth potential, shape of the growth curve and the feed intake characteristic of different genotypes improves the accuracy of delivering nutrients to support growth at the best feed cost. ■



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## BREAKOUT SESSION

### Marketing to the future customer

Summarized by Geoff Geddes, Alberta Pork

In the 1989 film “Field of Dreams,” an Iowa farmer finds the key to happiness and fulfillment in seven little words: “If you build it, they will come.” It makes for great fantasy, but the reality of achieving success in the pork industry is more complex. While it still begins with a quality product, it will require the proper blend of marketing, advertising, promotion and labelling to attract the consumers of tomorrow.

### Innovation and trends in consumer marketing in Europe

For Karen Hamann – Managing Director of the Institute for Food Studies & Agroindustrial Development in Denmark – good marketing is all about improving sales and growing market share. With that in mind, she outlined pork marketing strategies applied in Europe and examined how they meet consumer demands and concerns.

For marketing to succeed, the company or organization must have a thorough understanding of the market, the competition, the customer and the product itself. For example, there are significant differences between marketing a fresh meat cut and a processed product, just as there is a wide range of consumer preferences across Europe. To be successful, the company must identify their target market and the appropriate

distribution channel(s) for reaching that market (eg. retail stores, farmers markets, food service operations).

#### Pork consumption in the EU

Collectively, the EU-15 consumed about 10% less pork per capita in 2009 than they did in 1999. The primary factors influencing purchasing decisions are as follows:

- Price and taste
- Healthy food
- Production system (and attributes like free-range, organic, etc.)
- Environmental impact
- Food safety
- Country of origin

There is some variation between countries and regions. For example, nations like France and Spain place a higher priority



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on meat quality, whereas consumers in the Netherlands and Denmark are more concerned about animal welfare. But overall, and particularly in Eastern Europe, price remains the most influential purchasing parameter.

**Consumer segmentation**

European consumers can be divided based on consumption patterns. The “low variety – low frequency” segment, which accounts for 18% of consumers, is characterized by a lower consumption of pork chosen from a narrow range of products. A key decision-making factor for this group is the availability of product information at the point of purchase. By contrast, the “high variety – medium frequency” segment is marked by more frequent consumption of many different pork cuts and processed products. This category consists mainly of families and accounts for 51% of pork consumers. A third group, identified as “high variety – high frequency”, contains primarily less educated, overweight males in Northern Europe. Comprising 19% of consumers, they have a positive attitude towards new products, eat a large quantity of pork, and may have more than one serving of pork per day.

**Pork with attributes**

There is a growing trend for implementing schemes in the European food sector. The schemes target specific production requirements, product origins, food safety, product quality or defined parts of the value chain.

Organic food accounts for 8% of food consumption in Denmark, but only 2% of pork consumption. These purchasers of organic food fall into one of five categories:

- Enjoy life: 30%
- Safe and secure: 23%
- Idealist: 17%
- Price-concerned: 15%
- Doubting: 15%

The differences in consumer attitudes towards organic pork, and their

reasons for purchasing, strongly impact marketing strategies. For example, a company targeting the Idealist segment would focus on issues such as animal welfare, environmental impact, locally-produced pork and better quality.

**Promoting pork as healthy food**

In Northern Europe there is a strong preference for choosing food with a healthy profile. Several labelling schemes have been implemented to increase consumer awareness of healthy food choices. In 2000, Finland introduced the Heart Label to identify food products (processed and unprocessed) that meet the requirements for low fat, low sodium and, in some products, high fibre. Today, more than 85% of Finnish consumers recognize this label and what it represents.

Denmark adopted a similar label in 2009, known as the Key Hold Label. Already used in Sweden and Norway, this label promotes food that is low in sodium, sugar and fat. It can currently be found on a number of pork products including ready meals, liver pates and sausages.

**Summary**

Pork is consumed throughout Europe in both fresh and processed forms. Consumers can be segmented based on preferences and purchasing patterns, and companies and other organizations use this information to strategically target their marketing campaigns. While no marketing strategy will cover all the bases, proper research and planning can help ensure the biggest bang for your advertising buck.

**Advertising, promotion and labelling of pork to attract consumers**

Given the current state of the pork industry in Canada, we can't afford to leave any stone unturned in our quest to boost sales and market share. As Co-operative Chair in Agricultural Marketing and Business for the University of Alberta's Department of Rural Economy, Ellen Goddard is well-positioned to speak on how to evaluate some key marketing techniques and use that information to best advantage in attracting customers.

CONTINUED ON PAGE 64


**TOPIGS fact of the month**

## Lakeside Colony Alberta

**In late 2009 a decision was made to change genetics in our 500 sow production unit and in February 2010 we took delivery of our first TOPIGS gilts.**

**The performance of the TOPIGS gilts has been outstanding. They are easy to manage and farrow large litters of vigorous pigs that get weaned. Gilts from our previous genetic supplier were farrowing 11.2 born alive while the TOPIGS gilts average 12.2 born alive. We have also noticed the pre-weaning mortality is lower with TOPIGS. We are now weaning 11.6 pigs/litter compared to 10.4 pigs/litter with our previous genetics. We expect to increase our weaning numbers by about 5 pigs/sow/year.**

**We are impressed with the TOPIGS program because we can see it follow through to the performance in the barn. – Mark, Jerry & Phillip Wipf.**



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## Marketing to the future customer Continued

There are a variety of ways to ensure a strong domestic purchasing base for the Canadian industry. While advertising and promotion are effective tools for communicating value, consumers are requiring more and detailed information about the products they purchase, such as signals of origin, food safety and production attributes. As consumer interest in food products changes the types of product attributes, we must adjust labelling, advertising and promotion accordingly to ensure increased sales.

### New directions in labelling, advertising and promotion

In order to choose the appropriate form of labelling, advertising and promotion to optimize Canadian consumer pork sales, it's vital to understand current trends in pork consumption. For example, recent research challenges some long-held assumptions, suggesting that lower prices will not necessarily lead to an increase in consumption, while higher prices may not decrease sales.

In the Canadian market, it is possible to see the importance of different types of pork advertising, even over a brief period. Between 2000 and 2008, advertising, classified on the basis of who was paying for it (generic or brand), revealed that a much higher proportion of the cost was borne by processors in the form of brand advertising. Notably, however, advertising of

all types fell off considerably towards the end of this period. If other negative factors are influencing pork consumption in Canada, current advertising expenditures appear insufficient to counteract those factors.

### Measuring the impact of advertising and food safety concerns

The first measure of advertising effectiveness can be based on aggregate data; specifically, per capita disappearance of pork in Canada. On a per capita basis, disappearance is likely to be related to the price of pork and other meats, changes in disposable income, and advertising and promotion activity. Another key factor is concern about food safety, which may have arisen (rightly or wrongly) with the Listeriosis outbreak at Maple Leaf in 2008, and through the heightened awareness of the H1N1 virus, regrettably nicknamed the "swine flu."

These impacts were demonstrated in a recent study covering the period 1997- 2010. While price emerged as one of the most important determinants of consumption, advertising and food safety coverage were both deemed statistically significant in explaining pork disappearance in Canada.

For the industry, a better way to capture the importance of the key variables is to simulate what might have happened to pork expenditure (per capita and in aggregate) if the variables had been at different levels than actually existed in the past. For example, a recent simulation revealed that, on average, a 50% reduction in generic advertising would have reduced pork sales by .07 kg per person. By contrast, a 50% reduction in the number of articles tying pork and food safety together would have resulted in a 2.3% increase in pork consumption.

This data suggests that consumers are becoming more responsive to advertising, but are also sensitive to food safety concerns that inevitably arise from time to time. The implications for marketing in the hog industry are two-fold:

1. Safety concerns create an opportunity to generate positive consumer responses to information about food safety practices.
2. The impact of price and advertising on consumer demand opens the door for innovative strategies and niche marketing.

### Consumer response to different types of pork

A research project at the University of Alberta is examining different factors that add value to pork in the eyes of consumers. If, as the above results suggest, consumers respond to advertising and to food safety incidents, they may well respond to labelling on packages that provide more information about the pork attributes (eg. country of origin, type of production practice), as well as to food safety practices in the hog producing sector.



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CONTINUED ON PAGE 66



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## Marketing to the future customer *Continued*

The project aims to identify major drivers of quality across several different dimensions:

1. Indicators of *animal quality (grades)* at slaughter. This will vary by animal species.
2. *Technical indicators* such as color, shear force, and marbling.
3. *Sensory characteristics* that consumers equate with a positive eating experience, such as flavour and tenderness.
4. *Credence attributes*, such as farm production practices, that consumers cannot identify and must take "on faith" (eg. naturally raised vs. grain fed).

In the project, *traditionally* raised pork is used as an alternative to conventional pork, and a variety of labels are included on the packaged pork chops from which consumers are allowed to choose. Traditionally raised is identified

as pork from a family farm production setting, reared outdoors or in bedded settings, with no sub-therapeutic antibiotics or growth promotants, and no animal by-products in the feed.

The measures of hog quality, sensory quality and technical quality show differences across the two systems. In the case of hog grades, there is a wider distribution of grades for the traditionally raised hogs as compared to the conventional hogs, as might be expected in the late fall when this experiment was conducted.

For the shear force measure, there was a large degree of variability in the pork chops from hogs in both production systems. This could provide the basis for selecting certain pigs as being more desirable and thus more highly valued from a market perspective.

In terms of credence attributes, it appears that labelling has value beyond the base value of a pork chop, and many more combinations of attributes must be examined to identify the optimal combination. Finally, it appears that the information potentially provided on labels can serve as a better predictor of consumer purchases than a technical quality indicator.

### Summary

In spite of lower prices and excess supply, Canadian pork sales have failed to increase over the past few years. A strong and growing demand for pork

domestically might have helped to offset downturns in the industry. There is evidence that the industry is under-investing in advertising, particularly generic advertising, thereby missing an opportunity to generate additional sales. This is especially important in the face of real or perceived food safety incidents that seem to dampen consumer interest in pork products.

At a different level of the market, there may be an incentive to improve communication with customers through the addition of various labels identifying retail-ready product. Consumers are interested in, and will likely respond to, labels signifying country of origin and the existence of on-farm food safety programs. But they can't respond if they are not told of the designations. It is also clear that transaction costs may make retailers loath to incorporate such labelling practices into their meat marketing strategies. The growth in Loblaw's Free From sales, however, suggests that if retailers allow the labelling, there may be some significant benefit to hog producers.

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## BREAKOUT SESSION

### Heavier carcasses: What's in it for me?



Summarized by Bernie Peet

#### Heavier carcass weights - producer economics

The trend to heavier hog weights has been going on for decades, not years, with only brief respites during periods of rapidly escalating feed costs, notes Ron Gietz, with Alberta Agriculture and Rural

Development. This year, with some Western Canadian packers increasing their carcass weights close to US levels in new supply contracts, the topic has again risen to the fore. Whenever we see such a strong enduring trend in a market economy, the odds are that there are powerful economic forces at work, either on the supply or demand side, Gietz says. He examines the production economics of heavier carcass weights from a producer point of view.

#### Running the numbers

While every hog operation is unique, the basic economics of hog production can be modelled to demonstrate the impact of certain changes. "The George Morris Centre adapted its hog cost of production model to demonstrate the impact of increasing carcass weights from 92 to 95 kilograms, and from 95 to 98 kilograms," Gietz explains. "This was based on a 500-sow operation with 3850 finishing places, standards costs per pig place, a market hog price of \$1.50/kg and a feeder pig price of \$2.10/kg." Feed prices are for complete feed rations at August 2010 and feeding programs and conversions are based on Prairie Swine Centre research and publications, he adds.

"One of the key factors to be addressed by this model is the capital cost and physical barn constraints resulting from increasing carcass weights," Gietz continues. "That is, in addition to costs of gain and total output, there are the physical realities of barn space to be dealt with given larger finished hogs." The baseline operations at 92 kilograms and 95 kilograms are assumed to be finishing hogs near capacity. "As such, when carcass sizes increase to 95 and 98 kilograms respectively, as proposed, there are inevitable space issues created," Gietz points out. "The model addresses these challenges by assuming actions such as selling off weaners or accessing underutilized capacity. Another solution might be to finish hogs off-site."

CONTINUED ON PAGE 68



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## Heavier carcasses Continued

Table 1 shows the results the model predicts for increasing carcass weights from 92 to 95 kilograms and from 95 to 98 kilograms, based both on selling weaners and by changes to capacity utilization in the barn.

Table 1: Costs and breakevens per CKG		
	Cost Per 100 kg CW	Req'd base breakeven price
Baseline 92 kg carcass	144.19	132.28
Proposed 95 kg carcass	143.47	131.62
Baseline 95 kg carcass	143.53	131.68
Proposed 98 kg carcass	141.21	129.55

The model shows that the cost per pig is slightly lower if a way can be found to finish all the hogs to market weight rather than selling some as weaners.

Potential ways of finishing more pigs are:

- heavier weaning weights and thus heavier finishing barn starting weights.
- faster growth rates in finishing.
- better nursery performance and thus heavier finishing barn starting weights.
- better finishing barn utilization resulting in faster barn turnover.

**“Overall the increase in carcass weights should be beneficial to pork producers”**

“With regard to potential feeder pig sales, the model results show that from 92 to 95 kilograms, a unit would only have to sell less than 100 feeders over the course of the year,” Gietz notes. “From 95 to 98 kilograms that would increase from 0

at 95 kilograms to less than 550 pigs at 98 kilograms.”

Alberta producers should be able to lower per-kilogram costs and breakevens in the move to increase carcass weights by 3 kilograms, Gietz believes. Revenues and net returns are also favourable to producers based on the proposed changes in weight, he says. “While they will be challenged in terms of adapting barn space, the model suggests that producers should be able to adjust readily with little disruption,” he comments. “Overall the increase in carcass weights should be beneficial to pork producers.”

### Conclusions

The data is pretty clear that, for most producers, bigger is better,” Gietz concludes. “The best results come from squeezing more pounds of pork out of the same facilities, but even if you have to sell off some feeder or weaner pigs to make room, the heavier hogs still pay off. Of course, the producer is only half the equation. If your packer wants lighter carcasses and makes it worthwhile financially in terms of other incentives, listen to your customer.”

## Packer perspective on heavier hogs



Packers are demanding heavier carcasses in order to reduce unit costs in the plant by processing more kilos of pork in the same facility. But is this the only factor to consider? What about the impact on the retail or food service customers of bigger portion sizes? Jason Manness, Procurement Director with Maple Leaf Foods, describes the packer’s perspective and some of the challenges of moving to bigger and bigger carcass weights.

There is a significant increase in economic efficiency on a per hog basis in processing a heavier hog, Manness explains. He feels that the Canadian pork industry has been at a competitive disadvantage for years through processing a lighter hog. “A processing plant is like a production line,” he notes. “It requires the same labour to process a hog within a fairly wide weight range. The more kilos of pork we can put on a shackle, the more revenue we can earn from our fixed investment in the plant, equipment and overhead costs.”

Manness points out that the average annual increase in carcass weight in the USA over the last eight years has been 1.3 lbs. “The annual weight increase over the same period at Maple Leaf’s Brandon plant has been 2.2 lbs,” he says. “Although Canadian market weights are still lower than in the US, we have reduced the gap by 0.8 lbs per year.” He notes that 2010 was a record year for hog weights in the

US, with an average liveweight of 270.5 lbs (122.7 kg) in the Iowa/ South Minnesota region. “Initial 2011 weights are six pounds heavier than one year ago,” Manness comments. Target carcass weight for hogs at the Brandon plant has increased from 90-92 kg in 2004-5 to 96 kg in 2010, with a current target of 97.5kg. “These increases in weight have been achieved without any deterioration in carcass quality characteristics such as yield or backfat,” he adds.

**“Producers are now responding to changes in feed costs and market pricing when determining the optimum market weight”**

Manness says that many producers are now starting to follow a “full value hog” model which focuses on both weight and variance – or standard deviation – around the average weight. He also points out that producers are now responding to changes in feed costs and market pricing when determining the optimum market weight and will adjust the average weight up to 4 or 5 kg from the core weight on the grid. “The grid is designed to allow a shipping weight range of plus-or-minus six or seven kilos from the centre,” he says.

Despite the advantages of heavier carcasses to producers and packers, there have been some problems with food service

customers, Manness notes. “Portion size increased, which forced them to increase the price to the consumer and this was sometimes a challenge,” Manness explains. “We were getting complaints that the larger portion size of ribs would no longer fit on the plates!” Heavier cuts of pork also resulted in problems with carton weights exceeding the maximum employees are allowed to lift, he says. On the retail shelf, the width of loins meant that retailers had to use bigger trays or put less chops on a tray. “For the longest time, a consumer could go in and buy four pork chops on one tray for ten dollars to feed the family,” Manness comments. “Now those same four pork chops may cost 12 dollars or sometime there may be only three chops on the tray.” A similar challenge occurred with bacon, he says. “Wider bellies resulted in more trimming being required to fit the bacon into the typical Canadian package,” he explains. “Canadian processors have been reluctant to change the width of the package for bacon, but this could happen in future.”

Overall, the benefits of the additional throughput at the plant outweigh the challenges created by larger carcasses, Manness believes. “Maple Leaf’s sales mix is better off with a larger hog,” he concludes. “We are able to sort out the correct weight specification for our Japanese customers and many Canadian retailers want the bigger loin eye because it’s more attractive to their customers.” ■



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## BREAKOUT SESSION

## Transportation with care and profit

Summarized by Bernie Peet

## Livestock transportation training programs that teach practical pig handling skills

Animal handling specialist Nancy Lidster says that effective pig handling for transport starts with understanding the pig's herd responses and movement patterns. This requires that drivers recognize and respond appropriately to pigs' physical cues, especially signs of changing fear or defensiveness, she explains. In addition, drivers must also respond to what pigs are paying attention to and where that is drawing them. Lidster has used video to capture and analyze pig handlers of all skill levels working with pigs in a variety of situations and used the video in her pig handling training programs.

## Video recording

In 2007, Lidster travelled with transport drivers and mounted video cameras in their trailers while they picked up and delivered both feeder pigs and market hogs. The resulting 60 hours of video was used to understand the interactions between pigs and their handlers.

"By watching handlers of all skill levels working with pigs in a variety of situations, we find recurring patterns in the interactions between pigs and handlers," Lidster explains.

"The truly amazing handlers show us what is possible and demonstrate skills that can help all handlers move pigs more effectively. Handlers who struggle help us understand the causes of pig handling problems and how we can avoid them." Video allows the capture, comparison, and sharing of these pig handling models so handlers can gain from the knowledge and experience of other handlers, Lidster notes.

## Low Stress Pig Handling Course for truckers

The video collected provided the basis for a pig handling course for truckers, which is available via classroom delivery or on-line. The course contents were broken down into sections covering basic pig handling concepts and the loading and unloading of each compartment of a pot trailer.

"The relatively small crowded spaces of transport trailers and the restricted openings to some trailer compartments, limit pigs' ability to move and respond freely to drivers and other pigs," Lidster points out. "These conditions invite a shift in pig responses that can be problematic, especially for drivers who don't understand them and try to use a chase approach to force pig movement."

## Pigs' instincts

"Any time we start moving pigs, their behaviour tends to become defensive or safety oriented and they try to respond to us in ways that let them get release from our pressure, keep us out of their flight zones, keep track of us and stay with the herd" Lidster continues. "Pigs' efforts to meet all these safety needs produce predictable response patterns. If we understand those patterns and the conditions that trigger them, we can anticipate and manipulate pigs' responses to our advantage."

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**"When we allow pigs to meet their safety needs, they stay calm and relatively easy to control"**

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"When we allow pigs to meet their safety needs, they stay calm and relatively easy to control," she points out. "However, when pigs are not allowed to meet these needs,

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we see a number of changes as they become more scared or more defensive.” For example, Lidster says, they are more likely to circle back or bunch together and less likely to ‘flow.’

Pig moving problems usually occur because the handler has failed to recognize and respond appropriately to pigs’ natural movement patterns and to pigs’ defensive or fear-driven changes in behaviour, she believes.

**Human instincts**

We are often unaware of the influence our own instincts have on the way we try to move pigs, Lidster suggests. “Unmonitored and unchecked, our instincts are to chase animals to make them move,” she says. “We tend to work too much behind pigs, use too much pressure, and not give release. Emotions such as feeling rushed, anxious, or frustrated tend to intensify our instinctive responses and make matters worse.”

When handlers use fear to chase pigs they often shove into pigs’ flight zones and show no regard for the pigs’ other ‘safety’ needs. When pigs can’t get away from a handler who is chasing them, they switch tactics, for example circle back or stop moving.

“Handlers who move pigs effectively tend to be more aware and responsive to their pigs’ behaviour and less driven by their own instincts,” Lidster notes. “They read and respond to the pigs’ body language cues and adjust their own behaviour to make it safer and easier for pigs to go where they want them to go.”

**The link between fear and herd behaviour**

Pigs are usually moved in groups and display some form of herd behaviour, Lidster explains. Their herd behaviour takes three distinct forms, she says:

- Flowing - the herd is moving. Pigs move to stay with the herd.
- Bunching - the herd is stopped. Pigs stop moving and bunch together to stay with the herd.
- Circling – pigs circle to get out of a handler’s pressure

“The different forms of herd behaviour are not inherently good or bad; their usefulness depends on what we are trying to accomplish,” she says. “Flowing herd behaviour produces the movement we

typically want and is most likely to occur when pigs are calm and have ample space to move around.”

Ease of pig movement is largely determined by how well we manage pigs’ herd behaviour, Lidster concludes. “The close confines of a trailer naturally shift pigs’ herd responses in the direction of bunching or circling,” she suggests. “Thus it is important to keep pigs calm, use our position effectively, and manage pigs’ herd behaviour.”

The on-line pig handling course can be found at [www.dnlfarmstraining.com](http://www.dnlfarmstraining.com)

CONTINUED ON PAGE 72

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**Transportation with care and profit** *Continued*

**Effects of farm handling and transport on physiological response, losses and meat quality of commercial pigs**

If pigs are stressed during transport from farm to the processor it may result in major economic losses due to dead pigs during transport and at the plant, trimmed and condemned carcasses and poor meat quality, points out Jorge Andres Correa of the Canadian Meat Council. Additionally, upon arrival at the plant, some non-ambulatory pigs may need to be euthanized, increasing losses and compromising animal welfare standards, he notes. In Canada, mortality rate caused by transport conditions is 0.11 % and incidence of non-ambulatory pigs is approximately 0.40 %. Correa believes that the industry needs to better understand the factors that cause stress to the pig in the period surrounding and including transportation and also find solutions. He examines some research results that have led to an improvement in animal welfare and have the potential to reduce losses to the industry.

**Measurement of welfare during the loading and transport phase**

Abnormal behaviour patterns typically indicate how environments compromise welfare and are the first method to measure animal welfare. "During pig loading or unloading, measuring slips and falls, reluctance to move forward, slow movement, overlapping, going backwards, and stopping or running away are all signals indicating that something in the environment is affecting the normal movement of animals," Correa explains. "Likewise, pigs express their discomfort via vocalization, which according to the intensity and duration can show the degree of distress during the pre-slaughter activities." "Some physiological measurements such as heart rate, body temperature and breathing rhythm are also used to assess the stress of pigs during the pre-slaughter conditions and have been used to evaluate welfare," Correa adds.

**"The effects of feed withdrawal prior to transport have been underestimated"**

The percentage of animal losses during transport such as dead on arrival, non ambulatory pigs dead in lairage and condemned carcasses by transport causes are a measure of how pigs have been handled and transported, Correa notes.

"The type of bruises on the carcasses can indicate how animals behaved or were treated during transport," he says. "Finally, the impact of poor animal welfare is reflected in detrimental meat quality such as pale, soft exudative meat (PSE) or dry, firm and dark (DFD) meat."

**Effect of farm handling on animal well-being and pork quality**

**Feed withdrawal before transport**

The effects of feed withdrawal prior to transport have been underestimated and sometimes its negative effects are neglected by some producers, Correa believes. "Pigs with no fasting period before transport have a higher risk of fatigue,"

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he points out. “Also, feed withdrawal before transport reduces the symptoms of travel sickness, which decreases the risk of death.” The proportion of losses in transport is doubled when pigs are fed before transport.

A higher risk of gastro-intestinal tract lacerations during evisceration and carcass contamination is observed with pigs fed before transport. “We found that 77 % of carcasses condemned due to contamination came from farms with no feed withdrawal prior to loading,” Correa notes. “Furthermore, feed withdrawal before slaughter can potentially improve pork quality,”

**On farm facility design**

In the last 5 years in Canada, slaughter weight has increased from 113 to 130 kg liveweight, leading to more problems with blockages in hallways and alleyways. “Poor pig movement in alleyways and ramps increases stress and fatigue of pigs and contributes to a loss of patience of handlers who may then overuse or misuse the handling equipment such as electric prods,” suggests Correa. “As a result, fearful and stressed pigs are more difficult to handle, their skin is damaged and bruised and they are prone to produce a poor meat quality.”

**Equipment used to load pigs**

A combination of electric prods and boards or paddles and boards are the most commonly used equipment to handling pigs during loading. “Research shows that the use of electric prods produced higher numbers of slips and falls, pigs overlapping and higher numbers and durations of vocalizations,” Correa explains. “Also, heart rates of pigs loaded with electric prods were high from loading to just before slaughter.” In addition, there was more skin damage and increased meat quality problems.

**Enhancing farm facilities and handling**

A production and processing company in Quebec implemented an animal welfare program to enhance farm facilities and introduced a training program for transporters with no electric prods from the farm to slaughter. Correa reports a decrease in fatigued animals at arrival from 0.23 to 0.11%. “A couple of months later, the program was implemented on the farm and the percentages of fatigued animals at arrival decreased to 0.04 % and the dead on arrival pigs decreased from 0.11 to 0.04%,” Correa notes. A new program of payment with incentives encouraged handlers and transporters to slow down resulting in a decrease in fatigued pigs to 0.01%. “During those changes, a reduction in condemned carcasses from 0.13 to 0.03% was noticed,” Correa says. “Overall, the total of animal losses diminished from 0.41 to 0.08% which indicates that an improvement in animal handling had an economical impact on the company,” he concludes.

**Effect of transport on animal well-being and pork quality**

Most of the vehicles used for pig transportation in Canada are equipped with ramps in order to optimize the space in



Stress during transport impacts pig welfare and also meat quality

the trailers. “Some studies have demonstrated that trailers equipped with ramps increase the use of electric prods and reduce pig welfare, leading to more pigs dead on arrival, compared to vehicles equipped with hydraulic decks” Correa points out. Pigs transported in the vehicle with ramps also had higher concentrations of certain blood stress indicators.” As a result, he says, the meat from pigs transported in the vehicles with ramps showed higher values of ultimate pH and darker colours which are characteristics of a more exhausted animal. “The use of hydraulic deck vehicles is therefore an alternative to consider for transporting pigs in Canada because it can improve animal welfare and pork quality,” Correa concludes. ■



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## BREAKOUT SESSION

### Competing in the future

Summarized by Marvin Salomons

How do we compete in the future? What tools do we need to ensure we are competitive? What policies in the pipeline could impact the future business of raising pigs? These are some of the questions the pork industry needs to address if it wants to stay in the export business. Global pork production continues to evolve and become more competitive especially in regards to economic and production efficiencies. In addition, government policies are having a greater impact on the overall business of raising pigs. Bill Christianson, with Genus Americas, Tennessee and Ron Plain, State Extension Specialist at the University of Missouri-Columbia provide their insight on the challenges facing the pork sector as well as how it must position itself to be competitive.

Christianson presented a summary of results from a recent benchmarking survey completed by PIC North America. “We have recently put a lot of emphasis on benchmarking because of its importance” says Christianson. He showed summary data compiled from various benchmarking services and directly from PIC customers. The survey looked at costs of production and efficiencies, outlining the differences across the Americas. Although the survey definitely has a “large system bias” in the data, he noted there were significant directions the industry can get from the results.



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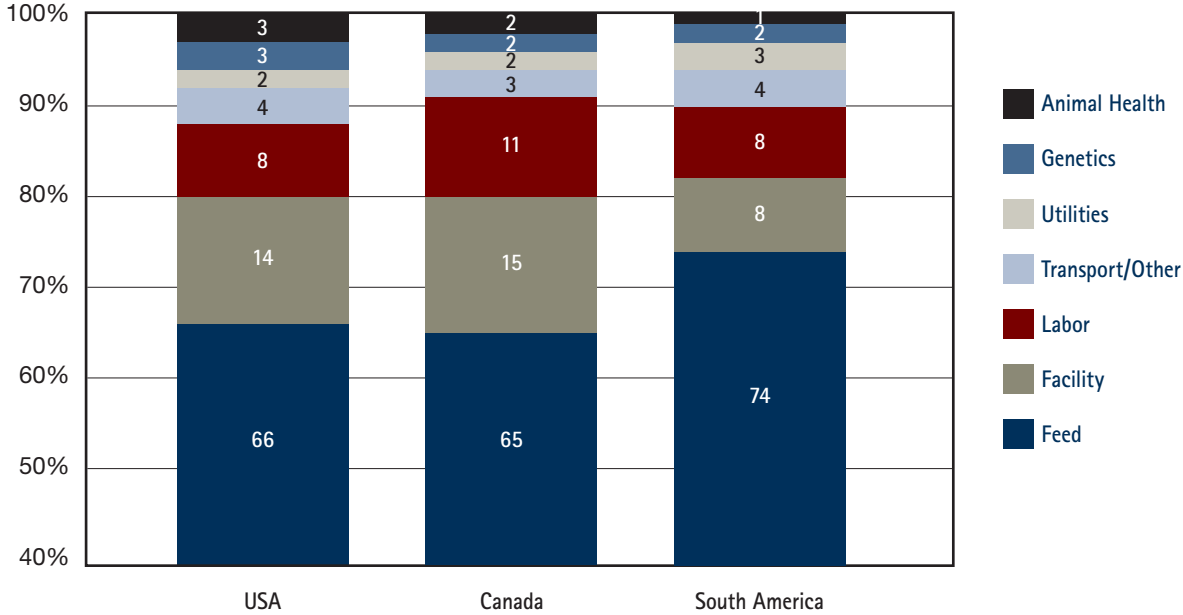
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Figure 1: Cost of production (%) in the Americas region



### What do the surveys show?

It is critical to first determine who your peers are when comparing your efficiency benchmarks as well as who is the competition, says Christianson. “The Canadian producer has an obvious peer group of Canadian producers but producers need to also benchmark across the entire Americas peer group,” he advises. “These are Canada’s competitors for the same key export markets.” He posted the latest 2009 results showing that despite economic advantages, Canada has a slight disadvantage in weaned pig costs of production (\$49.00 - 52.40/cwt) compared to its competitors in the Americas region. Brazil (\$47.72/cwt) and the USA (\$47.50 - 50.20/cwt) have the advantage.

**“Producers need to target more than 9,000 pigs weaned per worker”**

Feed is still the major cost (Figure 1), but in general Canada still has a smaller portion of costs in feed but a greater portion

in facilities and labour. The higher prevailing Canadian wage rates and the colder climate have pushed these costs up. “Producers need to continue to push productivity and look for opportunities and innovations in reducing these costs,” says Christianson. He notes that they found there are huge

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## Competing in the future Continued

differences between producers getting the average and those in the top 25%. “It is important to look at key performance indicators (KPI) such as kilograms of feed used/weaned pig or indicators such as the number of pigs weaned/worker,” he stresses. “Producers need to target more than 9,000 pigs weaned per worker and intervene when the number get below 8,000.” His surveys also found there are big differences between systems when it comes to KPIs.

### What can Canadian producers do?

Focus on weaned pig costs and market weights. That’s the message Christianson gave to Canadian producers. Weaned pig cost is a function of total throughput (quality of pigs weaned/sow) over input costs. The PIC survey, combined with public benchmark information, showed the components of total input costs comprise of feed (32%), facility (25%), labour (20.5%), sow (10.6%), vet-med (5.2%), semen (4.6%), and supervision (2.1%). “These are the numbers producers need to compare their own costs with when it comes to assessing their costs per weaned pig,” he says.

Christianson focused his attention on the key performance indicators of feed use, feed energy, facilities, labour, and sow cost as a means of reducing weaned pig costs. Hitting the targets and knowing when to intervene is key. “Target 80 pounds of feed/weaned pig,” he says. “If it gets over 85 you need to ask some questions and make changes. The same goes for pigs weaned/sow lifetime – target for more than 55. Intervene when it gets below 50.”

Market weight is another great opportunity that Christianson identified needs to be on the radar of Canadian producers. Canadian market weights traditionally have been lower resulting in reduced productivity as well as increased cost of production compared to other countries in the Americas region. He noted that research shows pigs don’t suffer in feed conversion efficiency when taken to heavier weights. “As a company we are focused on producing pigs that are

lean at heavier weights,” Christianson says. Where Canada really starts to fall back compared to other countries in the Americas is with the kilograms marketed/sow/year, he notes. “The top 10% in Brazil are hitting 3,107 kg while Canada’s top farms sit at 2,718 kg. Canada’s average is 2,418 kg marketed/sow/year.” Christianson summed up by suggesting that Canada needs to look at what other sectors, such as poultry, have done with benchmarking and learn from them. “Canadian producers need to chart their annual progress and continue to increase the rate of improvement. If they don’t, being competitive in the future will be very tough.”

## Agriculture policies on the horizon

Ron Plain, a regular face on the Banff Pork Seminar scene, outlined the growing impact government agriculture policies have on the future business of raising pigs. Plain walked the audience through an array of challenges he saw facing the pork industry over the coming years. “The pork industry has some serious challenges over the next few years around policies being implemented with respect to the economy, biofuels, environment, animal rights, pharmaceuticals, international trade, and in regards to competition,” he believes.

The state of the economy is tough on everyone and especially so for the pork industry. World pork production is at record levels but meat supply has tightened. Plain did not paint a “rosy” economic picture. He noted USA meat consumption has trended downward and is the lowest since 1996. He doesn’t see this reversing until housing values turn around. In November 2010, 23% of US home mortgages were underwater. US unemployment rates are now 9.5% and the duration of unemployment is now at 20-25 weeks, similar

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to the Great Depression era. “You won’t eat a lot of meat if you’re not sure about your employment status” says Plain. “Real GDP has dropped off as we keep seeing more and more government regulation.”

**“You won’t eat a lot of meat if you’re not sure about your employment status”**

Plain sees the greatest threat to the pork industry coming from the biofuels policy. Biofuel mandated requirements under current US federal law increase every year to 2015. Plain does not see enough corn left for the livestock industry to grow. The USDA estimates 38% of the 2010 corn crop will be used to make ethanol. Until the U.S. government changes its biofuels policy annual record corn crops are needed to keep corn prices from rising even higher. Dumping the policy will see more corn than we can deal with. Plain stressed the pork industry needs to think more about re-integrating hogs and crops if they are to make this work and survive.

The hog industry in general has been able to adapt its business to new environmental policies and requirements. The threat of tighter legislation on allowable fertilizer runoff is going to be an issue the industry will surely face. Air, water, and worker safety are high on the agenda. The public sees these as priority items and new proposed regulations will surely bring increased costs of production. Animal welfare is also an area the industry needs to constantly address. As western society grows more prosperous there is good reason to expect more regulations on the way farms produce and treat pigs. Plain says two main groups are front and centre – PETA and HSUS. Both have a lot of resources and are exploiting situations wherever they can. When asked about the future of sow stalls, Plain noted a lot of momentum for regulations is currently being built in non-hog producing states and when it gets to the federal voting level there will be a lot of votes already behind the movement. He indicated the use of pharmaceuticals in the livestock industry is also a controversial issue. “It is front and centre in Congress and we are seeing less excitement about approvals for new livestock drugs,” says Plain. He noted that producers will have fewer options in the future when it comes to disease prevention and treatment.

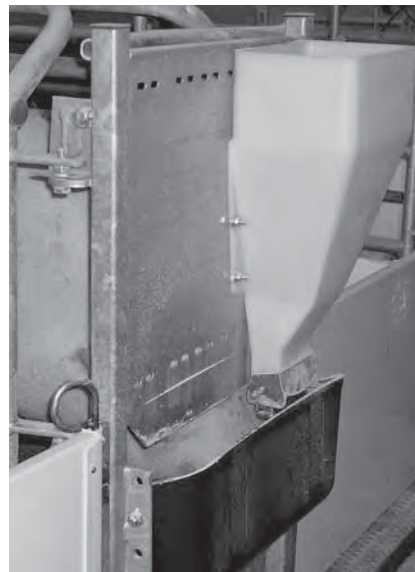
**Trade and competition policies**

International trade policies have led to protectionist practices by some importing countries. Plain sees open trade policies as highly beneficial to the North American industry. The good economic times seen globally over the past few years have brought a reduction in trade barriers but Plain sees current hard times likely bringing some trade barrier obstacles to the forefront. Exchange rates are

seen as another major concern for Canadian producers. A weaker US dollar will provide little comfort to Canada’s pork industry, as the opportunity for the US to increase exports becomes more advantageous.

Plain summed up noting that the USDA/GIPSA has proposed a series of new regulations under the *Packers and Stockyards Act* that will impact the competitive positions of USA meat industry companies. The idea is to make packer to packer hog sales illegal. Plain sees the advantages being touted as highly questionable. Packers will also be required to disclose differential pricing deals, maintain records of all transactions and be able to justify any deviations around pricing. “It’s about asking did the buyer wrongfully depress prices paid to a producer below market value and if not, why not?” Plain says. Along with these planned amendments there are several other new regulations being proposed along similar veins. “The people pushing them say it will make life better,” says Plain. “I think the opposite will happen.” He sees buying practices changing and more integration taking hold. The small guys will have a lot of protection for the livestock that they will not be able to raise and sell, concluded Plain. ■

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